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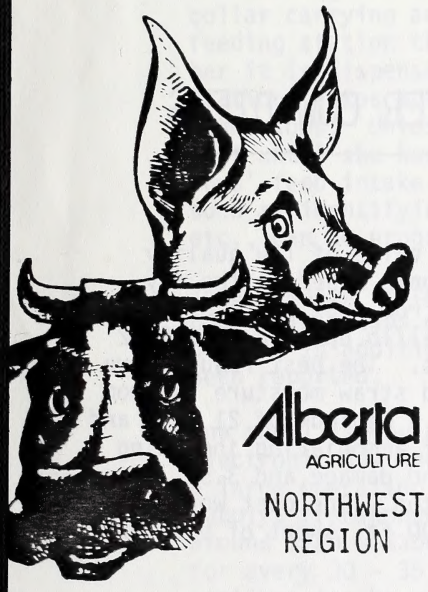

Alberta
AGRICULTURE
NORTHWEST
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Beef 'n Bacon

SHOUT
SHARE
IT

INTRODUCTION

Welcome to the first of eight monthly issues of Beef 'n Bacon. Beef 'n Bacon is a small portion of this winters livestock program in the north west region. The newsletter's objective is to reach livestock producers in the north west region with hopefully timely and pertinent topics. It is not our intention to explain in elaborate detail about the subject matter presented. Instead, we hope to spark your interest. More information on all articles is available by contacting your District Agriculture office or the editors.

Editors: Rob Hand, Regional Livestock Specialist
Marvin Salomons, Regional Swine Specialist
674-8248 or 134-1248 (RITE)

AMMONIATING STRAW FOR WINTER COW DIETS

Ammoniating is a method of increasing the feed value of low quality feeds such as straw or chaff. Adding 3.5% ammonia based on the dry weight of the straw will increase the protein from 4.0% up to 8 to 9% and increase the digestible energy from 0.8 Mcal/lb up to 0.9 to 0.92 Mcal/lb. Voluntary straw intake also increases. The best results are obtained when air temperature is above 15°C and straw moisture is from 15 to 18%. The straw should remain sealed for a minimum of 21 days and longer if temperatures are colder. The cost of ammoniating including the 6 ml black plastic, fish net to prevent wind damage and 3.5% anhydrous ammonia is approximately $17 to $20/ton. The cost would be cheaper if more straw would fit under a 40 X 100 ft. sheet of plastic, i.e. such as in a pit silo.

With an initial straw price of $25, ammoniation brings the cost up to $42 to $45/ton. For ammoniation to be an economical alternative, a mixed legume grass hay would have to cost at least $100.00 per ton or barley greater than $3.00/bu ($138.00 per tonne) processed.

Some example straw and ammoninated straw rations (no wastage or adjustment for cold added) for beef cow in mid pregnancy are:

Straw	13.5	13.5	-	-
Mixed Hay	9.0	-	5.5	-
NH_3 Straw	-	-	16.5	16.5
Barley	-	5.2	-	3.6
32% Supplement	-	1.0	-	-

ELECTRONIC SOW FEEDING

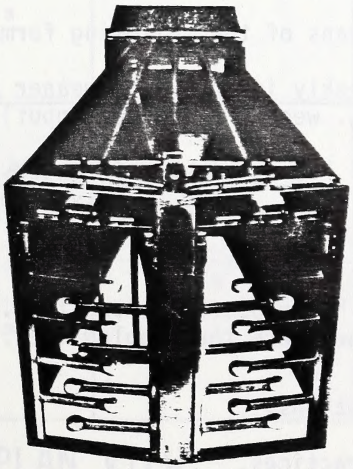
Most producers keeping dry sows outside have at one time or another experienced the joys of feeding in wet or cold weather. In most cases efforts to reduce feeding chores results in dropping feed on the ground or feeding with the help of large self-feeders. In any event, feed wastage is generally high and sow feed intake is very difficult to monitor.

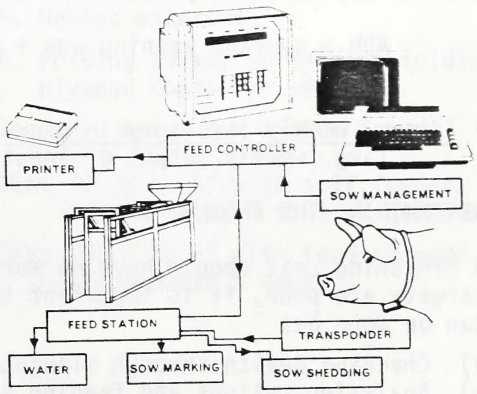
Automated sow feeding stations are giving outdoor sow feeding a new look. Adapted from automated dairy feeding systems, the computerized sow feeding system allows sows to be loose housed yet still fed individually. Feed intake as well as many other management practices can be closely monitored.

The system consists of a central computer, with keyboard and printer, controlling one or more feed stations. Every sow in the group wears a collar carrying an individually coded responder. When a sow enters the feeding station the computer identifies her and if she has feed due to her it is dispensed in fixed quantities. While she is in the feeding station, gates automatically close behind the sow to prevent bullying by other sows. Unless she chooses to leave the station, the gates remain shut until she has eaten all her allocated ration. A printout of each sows' feed intake is available at any time. Other management practices such as identifying sows for farrowing, pregnancy checking, vaccination, etc., can be programmed into the system.

This feeding system is gaining widespread popularity in Europe. Sows housed in groups on straw are satisfying the animal welfare movements' codes. In addition, improvements in sow condition and performance have been reported.

One model is now available in Alberta. A distribution for the Hunday Electronic Sow Feeder has been established. Initial cost estimates for a large operation including a base station, printer, emergency power supply, transponders, collars, feeding stations and equipment sells for around $280 - $300 per sow. Recommendation call for one feeding station for every 30 - 35 sows. A smaller system for 40 sows with two feeding stations can be gotten for around $25,000.





IMPROVING DAYS TO MARKET

Average days to market (ADM) is one of the best tools to determine management in the grower-finisher unit. This measurement is important in assessing overall management because it reflects every aspect of the operation --- nutrition, health, environment, genetics and management.

WHAT DOES IT COST?

Delays in marketing pigs at an early age can become a large expense of which the largest part is the feed bill. The daily cost of keeping a finishing pig weighing 190 to 220 pounds is as follows:

a) Feed: 6 lbs/day at \$0.09/lb = \$0.54/day
b) Other costs (finishing unit only) = \$0.16/day
operating costs, taxes, interest, labor, depreciation
c) Other costs (farrow to finish unit) = \$0.30/day
operating costs, taxes, interest, labor, depreciation

The total cost would be \$0.70/day in a finishing unit or \$0.84/day in a farrow to finish unit. An additional 20 days of housing a pig could cost an extra \$16.80.

TARGETS

ADM targets producers should strive for are 160 to 170 days in a farrow to finish operation and 120 days or less in a finishing unit. If the unit is presently averaging 180 days, this means some of the pigs are reaching market weight at 160 days and others are at 200 days or more. Although most producers do not have an accurate estimate of their ADM, I would speculate most units would average 185 days or more.

DETERMINING DAYS TO MARKET

Many systems of determining ADM can be used -- ear notching, ear tags, pen charts, etc. One easy method is ear tagging a group of pigs as they are weaned and moved into the nursery. In order to get a good representation, at least 15% of the group should be randomly tagged. It is important to monitor the bad pigs as well as the good pigs. The progress of these pigs can then be tracked as they move through various phrases in the unit.

Another way to quickly determine ADM is by means of the following formula:

$$\text{ADM} = \text{average weaning age} + \frac{7\ (\text{avg. weekly inventory in weaner barn})}{(\text{avg. weekly output or input})}$$

$$+ \frac{7\ (\text{avg. weekly inventory in grower barn})}{(\text{avg. weekly output or input})} + \frac{7\ (\text{avg. weekly inventory in finisher barn})}{(\text{avg. weekly output or input})}$$

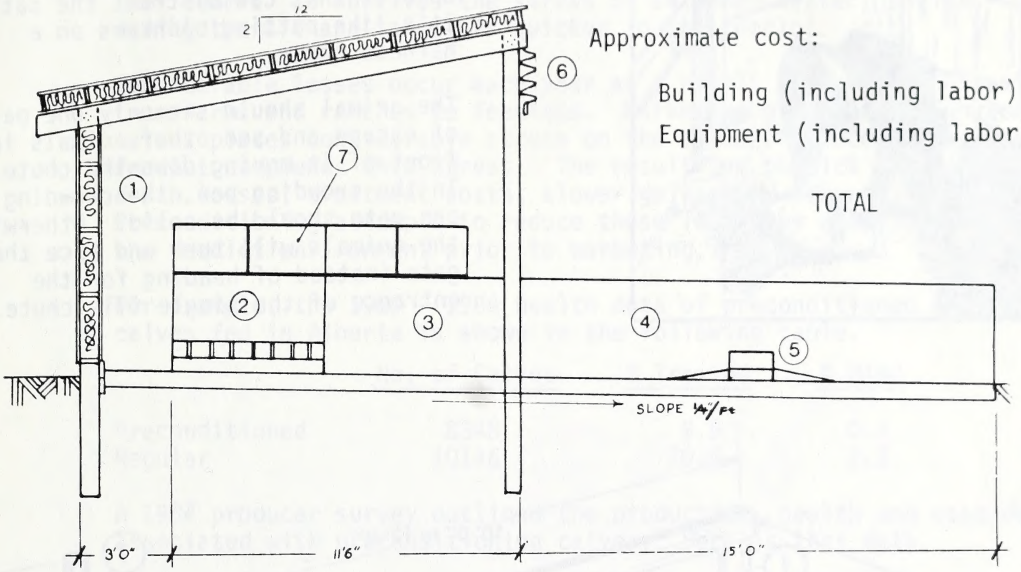
DETERMINING THE PROBLEM

A finishing unit should have no more than 2% "poor doers" at one time. If ADM targets are poor, it is important to determine where the problem lies. This can be done by:

a) Checking health through slaughter examinations.
b) Analyzing rations and feeding techniques.
c) Assessing environmental and management practices.
d) Evaluating genetic programs.

DRY SOW OR FINISHING SEMI-CONFINEMENT FACILITY

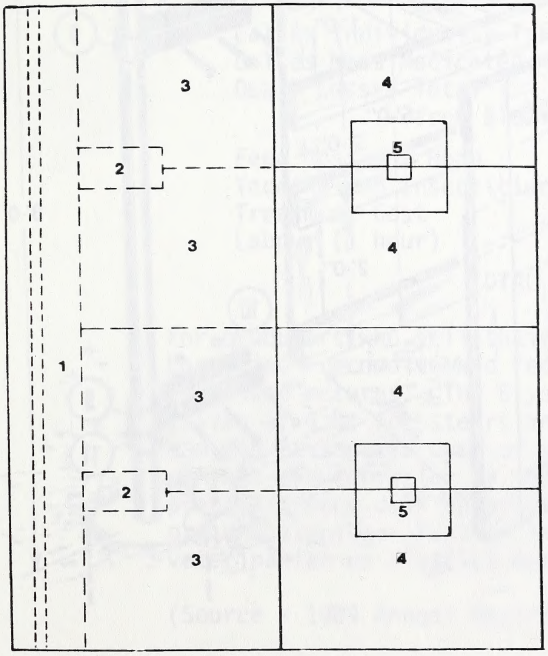
This inexpensive semi-confinement facility for finishing pigs or dry sows provides a warm micro environment under a straw-covered kennel area. The structure consists of a single-sloped open front shed with an insulated roof and drop front panels. Natural ventilation is sufficient. Concrete floors and runs are recommended.



END VIEW

Approximate cost:

Building (including labor)	$3.50/ft.^{2}
Equipment (including labor)	$3.50/ft.^{2}
TOTAL	$7.00/ft.^{2}



PLAN VIEW

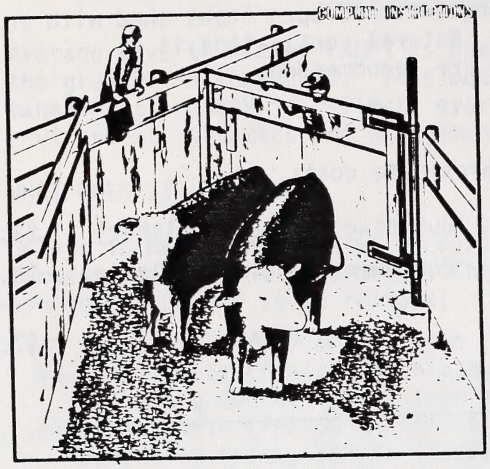
1. Feed and service alley
2. Self feeder (or feed trough)
3. Feeding and resting area
4. Outside run
5. Heated waterers
6. Folding turkey curtain or folding plywood doors for winter
7. Straw bales for winter kennel

Pens 10' X 11'6" with self feeders accommodate 10 sows or 14 finishers.

Pens 10' X 11'6" with feed through accommodate 6 sows.

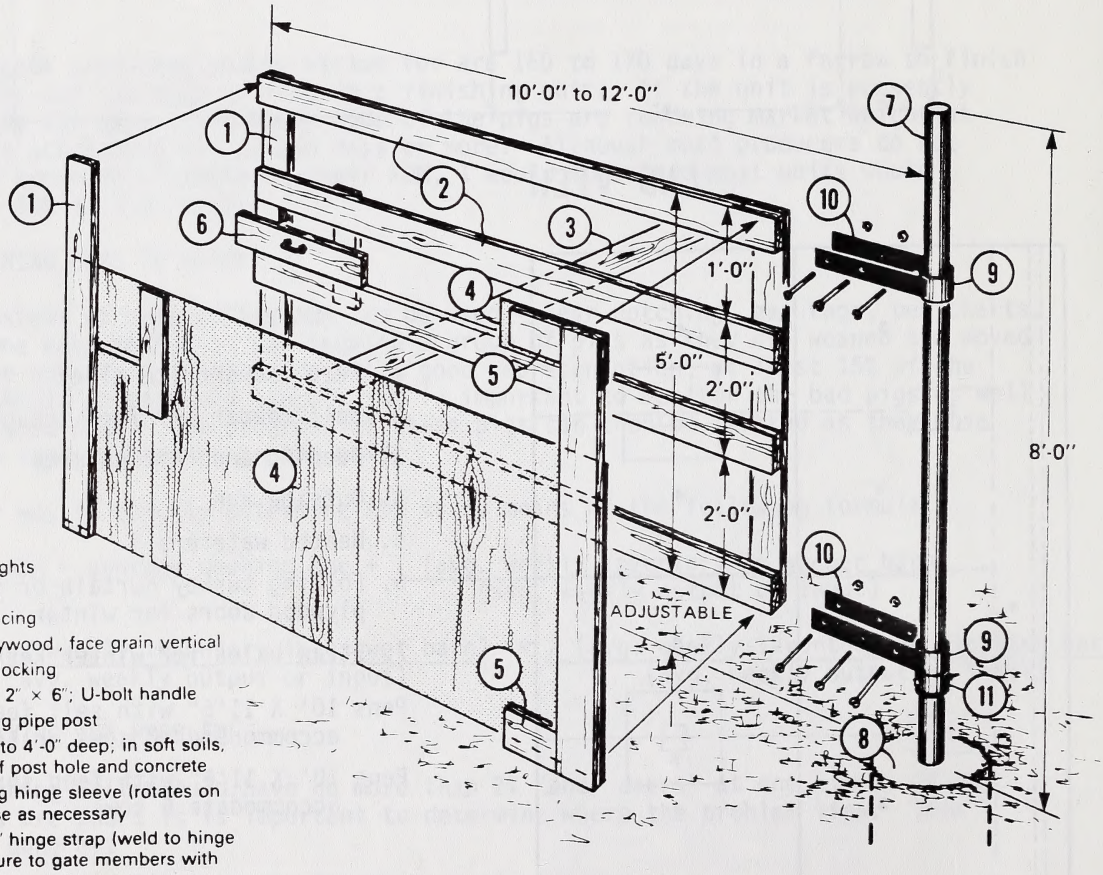
CROWDING GATE

Canada Plan Service #1812



The sides of the single file chute, loading chute and the crowding pen should be solid. Solid sides prevent the animals from seeing unwanted objects that can distract the cattle. It's like putting blinkers on a harness horse.

The animal should see only one path of escape and see other animals in front of it moving down the chute. In the crowding pen, the crowding pen gate should be solid. Otherwise, the animals will turn and face the gate instead of heading for the entrance of the single file chute.



1. 1" × 6" gate uprights
2. 2" × 6" gate rails
3. 1" × 6" cross bracing
4. 3/8" sheathing plywood, face grain vertical
5. 1" × 6" spacer blocking
6. latch board from 2" × 6"; U-bolt handle
7. 3½" × 12'-0" long pipe post
8. concrete backfill to 4'-0" deep; in soft soils, increase diam. of post hole and concrete
9. 4" pipe × 3" long hinge sleeve (rotates on post (7)), grease as necessary
10. 3/8" × 3" × 1'-4" hinge strap (weld to hinge sleeve (8)) secure to gate members with 3/8" machine bolts
11. 4" pipe × 3" long collar; drill post (7) and collar for 3/8" bolt, drill additional holes in post for vertical adjustment

ALBERTA CERTIFIED PRECONDITIONED FEEDER PROGRAM

A feeder calf which has been weaned, vaccinated, castrated and dehorned well before shipment to the feedlot is worth more to the producer and the feeder. It survives the stress of shipment better, shrinks less during transit and takes off quicker in the feedlot.

Considerable losses occur each year as a result of movement of calves from farms and ranches to feedlots. Marketing of unweaned, unvaccinated calves places considerable stress on the calves. Processing calves at the feedlot compounds this stress. The result can be sick calves and higher death losses, treatment costs, slower gains, and reduced feed efficiency. Preconditioning attempts to reduce these losses by adapting the calves to the feedlot environment prior to marketing.

For example, the 1980 - 1984 health data of preconditioned and regular calves fed in Alberta is shown in the following table.

	No. of Calves	% Treated	% Died
Preconditioned	8348	9.9	0.7
Regular	10146	20.4	2.2

A 1984 producer survey outlined the production, health and cost data associated with preconditioning calves. Here is that data.

Average Herd Size	65	
Average Selling Weight - steers	579	
- heifers	534	
Average Days Weaned	49	
Calves Individually Treated		3.7%
Calves Mass Medicated		12.0%
Death Loss - Total		0.7%
- from Bloat		0.35%
Feed Cost per Head	$40.93	
Vaccine and Insecticide	2.43	
Treatment Cost	.87	
Labour (1 hour)	9.00	
TOTAL COST	$53.23	

For producers who sell their calves in the fall, following the Alberta Certified Preconditioned Feeder Program requirements has the potential for added returns. The 5 year average price differential above regular calves of 4.8¢ for steers and 4.0¢ for heifers, the extra weight gain and the reasonable cost of gain during the preconditioning period warrant consideration by the cow-calf producer. In 1984, the average preconditioned calf returned 66% above the average cost of preconditioning. Further information can be obtained from your veterinarian or district agriculture office.

(Source - 1984 Annual Report)

FEEDBUNK MANAGEMENT: DURING THE STARTING PERIOD

The objective of the starting period is to acclimatize the animals to their new environment and to get them onto a diet of maximum energy intake as soon as possible. In order to do this the bacterial population must be changed from one that is adapted to digesting mostly hay or grass to one that can handle a ration consisting mostly of grain. This is accomplished by gradually increasing the grain portion of the ration over a 14-21 day period.

The following husbandry factors are important during the starting period and in handling new arrivals:

1. Cattle start better in small pens. A limited area will reduce the amount of time walking the fence line in search of "Mom".

2. Remove old feed from feed bunks and clean and drain water troughs.

3. Fill cattle on a good quality grass-legume, grass or greenfeed hay the first 12 to 24 hours. Hay should be placed on ground outside of feeder as well as inside feeder. Avoid feeds high in moisture or protein or that contain mold, dust or heat damage.

4. Avoid overcrowding during the first 30 days.
   - Calves - 40 - 50 ft.^{2}, 12 to 24 inch bunk per head
   - Yearlings - 50 - 100 ft.^{2}, 12 to 24 inch bunk per head

5. Provide adequate shelter or wind breaks.

6. Sort cattle according to sex and size.

7. Watch water consumption; continuous flow water troughs are helpful in first couple of days but remember first feed, then water.

8. Provide loose trace mineral salt.

9. Feed mixed starting ration in feedbunks.
   - 30 - 45% concentrate
   - avoid supplements with urea during the adjustment period
   - minerals - Ca, P, salt and trace minerals
   - vitamins - particularly Vitamin A

10. Feed calves 3-4 times per day for first week.

11. Starting pens should be wide along feedbunk side, and shallow.

12. If cattle don't eat in 1-3 hours, feed long hay in bunks.

13. Avoid handling cattle during first 30 days.

(Adopted from Baker and Church, Understanding and Managing Feedlot Digestible Problems, 1980.)

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Beef 'n Bacon

INTRODUCTION

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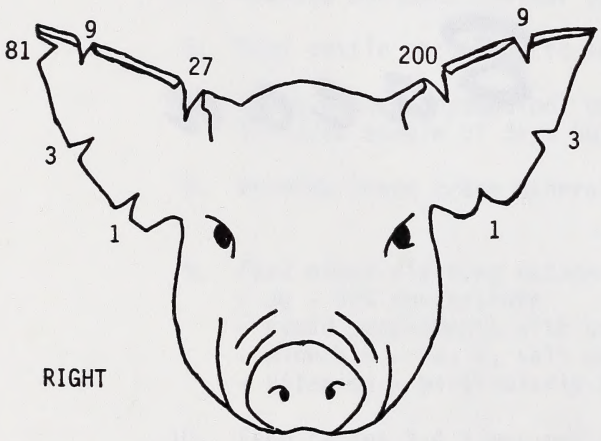
Marvin Salomons, Regional Swine Specialist
674-8248 or 134-1248 (RITE)

SWINE

EAR NOTCHING PIGS

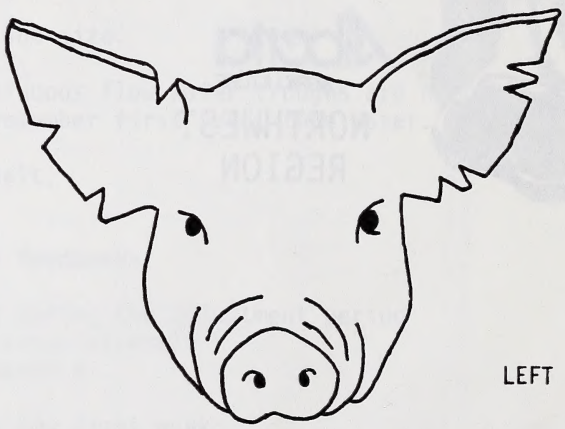
Ear notching pigs can be done with a special pair of notching pliers. Usually done when the pig is 10 to 12 days old, the notch grows with the ear and is easily read throughout the pig's life. One system of notching is shown below.

NOTCHING AS INDIVIDUALS



The value of each notch depends on placement on the ear. The litter mark is made on the right ear and all pigs in a single litter have the same notches in this ear. Up to 161 litters can be identified. Individual pig numbers are marked on the left ear.

NOTCHING BIRTHDATE



This pig has the number 8 in the left ear and the number 31 in the right ear. With this system this would represent a birthdate of August 31. This can be used as a measure of days to market.

CALIBRATE FARM FEED MILLS

Inaccurate feed mixing can reduce sow performance, pig feed efficiencies and daily gains. A farm feed mill out of calibration not only means you may be giving your pigs an unbalanced diet, but you may be wasting money.

COSTS

On average, including sow feed, it takes approximately 875 pounds of feed to finish a hog to slaughter weight. If your properly calibrated mill saves you one-half cent per pound of feed you could save $4.38 per head. A typical 100 sow unit could save $8,000 per year.

METER MILLS

Meter-type feed mills work on a volume basis and assume constant feed ingredient weights. Any changes in volume density, for example the bushel weight of barley will change the weight and the actual nutrient mix. Using a light weight barley could increase the protein content of the completed mix. This means your costs are going to rise.

RULES TO FOLLOW

1. Operate mills at the speed recommended by the manufacturer. Calibrations for proportioners are designed to function at a specific speed.

2. Ensure ingredient flows into the mixing compartment are consistent and continuous.

3. Precise calibration for expensive ingredients such as premixes and protein sources is important.

4. Re-calibrate your mill when a new ingredient source is used.

5. Make use of an accurate weighing container and scales for determining accuracy of calibrations.

6. Formulate rations based on weight rather than volume. Know bushel weights and moisture contents.

7. Feed test. Check accuracy of calibrations and mixing by sampling and analyzing on a monthly basis.

FEED TESTING

Feed testing costs, but the savings you get in return may be considerably greater. Feed testing information, forms, and containers are avialable at your local District Agriculturist's Office.

WINTERIZE BREEDING HERDS

Extreme cold weather will soon be upon Alberta. Pork producers winterizing vehicles and equipment should also consider winterizing their breeding herds. Reproductive performance of breeding stock kept outdoors can be severely reduced during the cold harsh winter period.

COLD STRESS

Boars housed outside on dirt lots or in open front sheds are most often affected. Severe cold stress can reduce boar fertility for periods up to 6 weeks. Severely frostbitten testicles can lead to secondary infections often rendering boars permanently infertile. Severe frostbite can be easily spotted on white breeds but is not always noticeable on colored breeds.

Sows housed outdoors may also be affected by the cold. Sows can freeze their underlines reducing their effective productive life. Newly weaned sows in very poor condition lack adequate body thermal insulation. As these animals are moved to outside facilities during extreme cold periods they may fail to return to estrus rapidly, fail to conceive, or fail to maintain a pregnancy.

FEEDING

Sows have a lower critical temperature of 21°C. Sows housed below this temperature require higher feed levels in order to stay warm and reduce body weight loss. The following table shows how a drop in environmental temperature affects feed requirements.

EFFECT OF ENVIRONMENTAL TEMPERATURE ON THE AMOUNT OF FEED REQUIRED FOR MAINTENANCE IN PREGNANT SOWS.

	Degrees Below Critical Temperature (°C)			
	0	5	10	15
Type of Sow	Increase in Feed Required/Day (g)			
Fat	0	178	355	711
Thin	0	282	564	846

Source: Holmes and Close, 1977 (1 lb = 454 g)

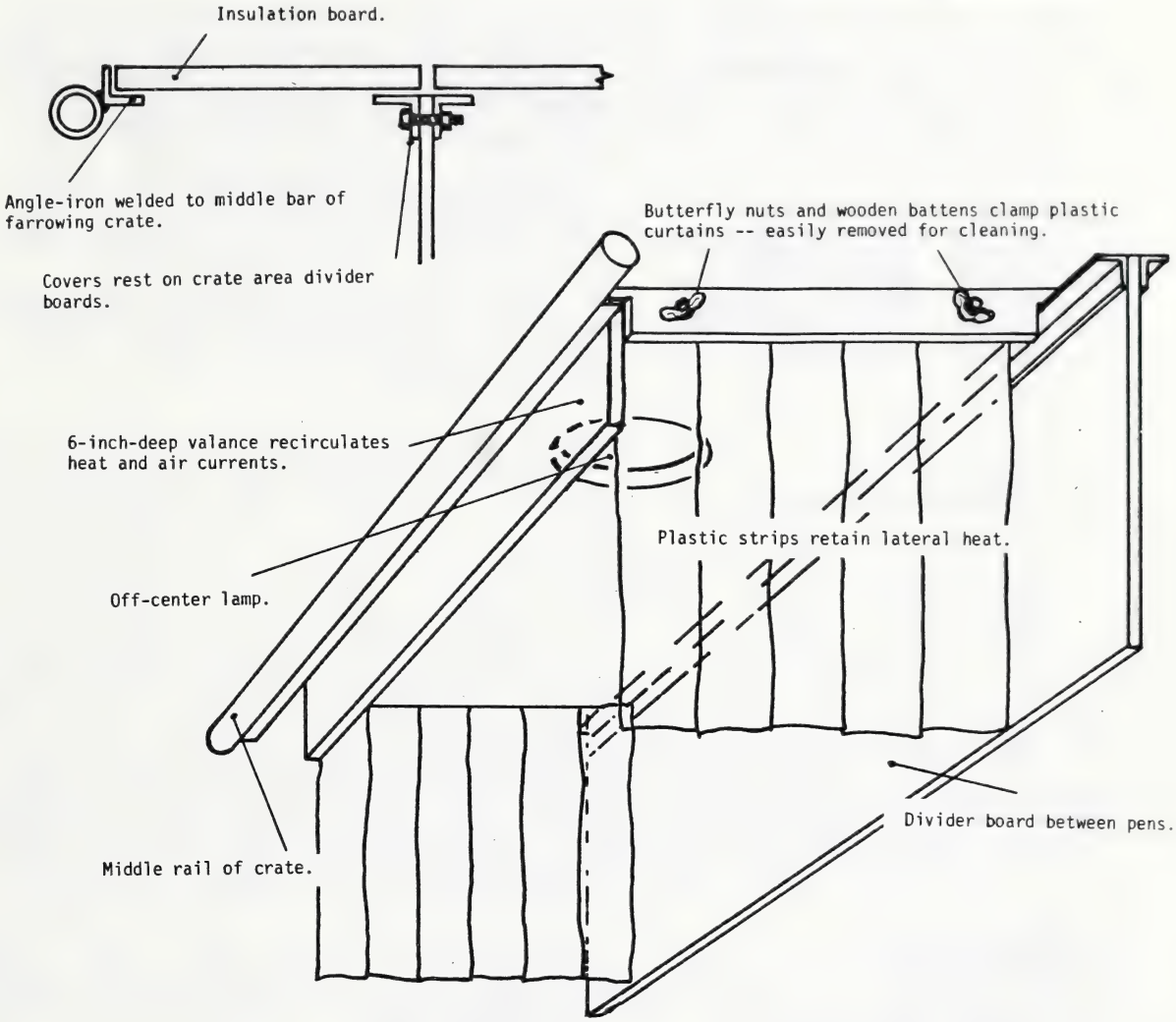
Sows housed at 20°C should receive 2.0 kg of feed per day whereas shows housed at 5°C should receive at least 3.0 kg of feed per day. In order to stay warm boars may require an extra 0.5 to 1.0 kg of feed per day.

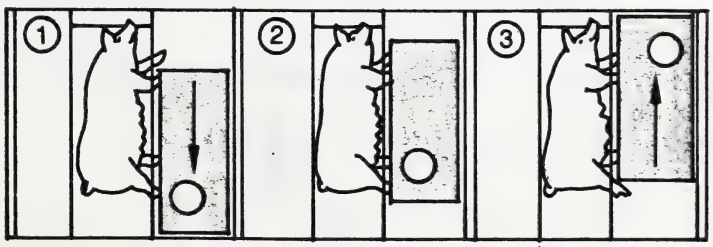
ENVIRONMENT

In many cases, facilities are the limiting factor. Increasing insulation in open front sheds or adding wind breaks can make dramatic improvements in pigs performance. Adding lots of straw bedding can raise the effective environmental temperature by as much as 10°C.

MOVABLE PIG CREEP COVER

SOURCE: JOHN GADD, 1985.

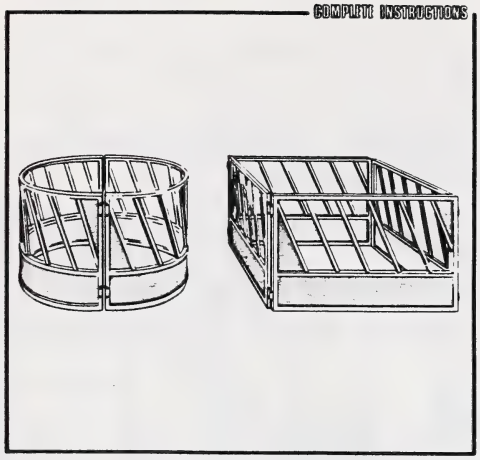

Insulation board.
Angle-iron welded to middle bar of farrowing crate.
Covers rest on crate area divider boards.
Butterfly nuts and wooden battens clamp plastic curtains -- easily removed for cleaning.
6-inch-deep valance recirculates heat and air currents.
Plastic strips retain lateral heat.
Off-center lamp.
Divider board between pens.
Middle rail of crate.



Position 1. At Farrowing: Lamp draws newborn piglets toward udder as cover is pulled in rear.
Position 2. After Farrowing: Cover is pulled forward opposite the udder, leaving dirty end of the creep cooler.
Position 3. 7 - 10 Days Later: Board is now reversed and pulled forward to coax piglets out of resting sow's way.

GIANT BALE FEEDERS (STEEL)

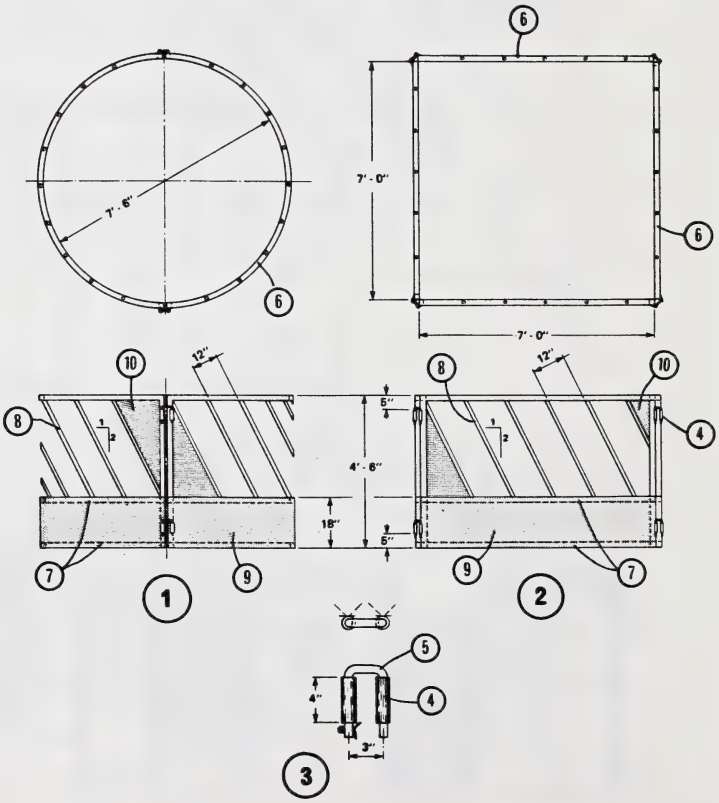
CANADA PLAN 1642



Important feed-saving features are the solid lower section and the slanted divider bars above. Spacing these bars 12" apart is a good compromise for all ages of cattle.

With slanted bars, cattle must lift and turn their heads a little sideways to withdraw. This makes it a little more difficult to pull hay out of the feeder, reducing waste. Triangular openings at the ends of each panel should be closed with sheet steel; otherwise cattle can occasionally get wedged in these tapered openings.

Move feeders often to prevent a buildup of trampled feed. Maintaining an 18" throat height on the bale feeder will help prevent wastage.



1. giant bale round feeder
2. giant bale square feeder
3. locking pin assembly
4. ¾" pipe welded both sides to frame
5. ¾" steel rod, bend as shown and drill end for cotter pin
6. 2" × 2" × ⅛" square steel tubing, framing
7. 1½" × 1½" × ⅛" square steel tubing, framing
8. 1" × 1" × ⅛" square bars
9. 16 ga sheet steel welded or bolted to frame
10. fill triangular corners to prevent cattle from being caught

LEAST COST WINTER RATIONS

There are many ways to feed a 1,200 lb cow in mid pregnancy, but some will cost more than others. The major feeds available and a ball park cost are mixed hay ($70/ton), barley straw ($25/ton) and barley grain ($2.40/bu). The following table gives a simple comparison between possible rations and a representative cost per day at both -10°C and -30°C. The figures show that cold temperatures elevate the daily cost by 15¢ to 20¢ per day. It also shows that by including straw in the winter diet, hay supplies can be extended substantially and cost is decreased by approximately 20¢ per cow/day. Over a 4 month period on even 50 cows, this saving can lower the feed bill by $1,200.

	NO WASTAGE ADDED					
	TEMPERATURE -10°C			TEMPERATURE -30°C		
	A	B	C	A	B	C
Mixed Hay	-	21.0	9.0	-	27.0	15.0
Barley Straw	15.0	-	-	15.0	-	15.0
Barley Grain	5.0	-	15.0	10.0	-	-
32% Supplement	1.0	-	-	-	-	-
2:1 Mineral	-	-	-	0.02	-	-
1:1 Mineral	-	0.02	0.05	-	0.02	0.02
TM Salt	0.02	0.07	0.07	0.07	0.07	0.07
Cost/Day ($)	0.55	0.75	0.55	0.70	0.95	0.72

In reality, there is some wastage, especially with hay and straw diets. But the amount of wastage can be effectively reduced by having properly constructed feeders. The second table shows the daily feed costs at both 10 and 30% roughage wastage. Reducing feed wastage from 30% down to 10% could save from $240 to $1080 over the same 4 month period for 50 cows. Note that both least costing rations and reducing feed wastage can have a tremendous impact on the pocket book.

	COST PER DAY					
BASED ON ABOVE RATIONS	TEMPERATURE -10°C			TEMPERATURE -30°C		
	A	B	C	A	B	C
+ 10% Wastage	$ 0.57	0.83	0.60	0.72	1.05	0.80
+ 30% Wastage	$ 0.61	0.97	0.70	0.76	1.23	0.93
DIFFERENCE/COW/DAY	$ 0.04	0.14	0.10	0.04	0.18	0.13

SOME COW FEEDING TIPS

The following tips may be useful in extending winter feed supplies and ensuring that cows are in optimum condition for calving and later rebreeding.

1. Calculate the amount and type of feed "on hand" and "will be needed" over the winter-spring period. Based on this inventory, excessive feed could be sold or if supplies inadequate, hay or grain purchased. Heavy culling of the cow herd or perhaps selling the steer or heifer calves can be considered to match feed inventory with requirements.

2. Utilizing straw and grain can lower the winter feed bill by 20¢ per head per day over an all hay diet. But note, feed wastage of 25% or greater would negate any savings in the least cost ration. Wastage is reduced by utilizing adequate number of good feeders. Good feeders do not cost, they pay.

3. Separation of the cow herd into feeding groups by age of cow or condition score of cow can save feed and give young and thin cows less competition at the feedbunk.

4. When limiting a particular feed such as hay or grain, allow for extra feeding space. All cows must have equal access to that limited feed. Allow a minimum 25" per head of feedbunk space. There is little advantage to limiting straw intake.

5. When limiting a particular feed such as hay or grain, feed that limited feed only once per day. In that way, boss cows will have less opportunity of over consuming their share of the limited feed. Cows not accustomed to grain may require a 1 week adjustment period at lower levels.

6. Protection from wind and wet conditions can save 20% of the winter feed bill. Acceptable shelter can include bush, porosity fences and open front sheds that are well bedded. Cows entering winter in moderate condition require less feed to combate winter temperatures than thin cows.

7. Each winter there are from 20 to 50 days when the temperature does not exceed -20°C. Cattle do acclimatize to cold, but for these days feed an extra 4.0 lbs of barley or 6.0 lbs of mixed hay.

8. Save the best feed for late winter, early spring when cows are calving.

9. Chopping or grinding of roughage through a 1/2" screen will increase consumption of low quality feeds and may reduce wastage. However, for wintering cows, it is usually not an economical alternative.

10. As the amount of feed is more closely controlled, good management becomes more critical.

AL I VII

DECEMBER, 1985

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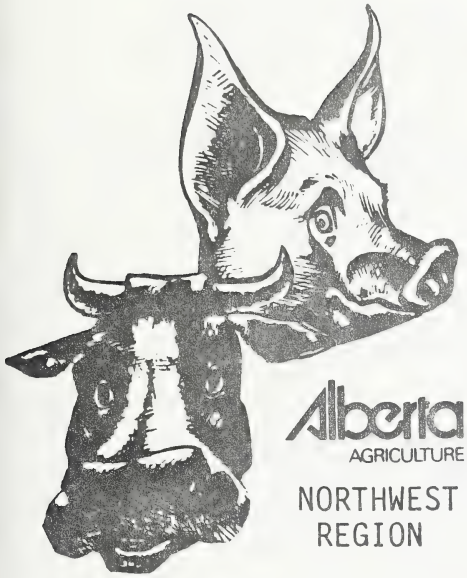

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Beef 'n Bacon

INTRODUCTION

This is the third of eight monthly issues of Beef'n'Bacon. The newsletter is being mailed to approximately 2500 beef and hog producers in the northwest region. Our intention is to give a brief overview of the subject matter presented. More information on all articles is available by contacting your District Agriculture office or the editors.

Editors: Rob Hand, Regional Livestock Specialist
Marvin Salomons, Regional Swine Specialist
674-8248 or 134-1248 (RITE)

ERRATUM

The November Beef'n'Bacon issue contained a mistake on page 7, under temperature -10°C, ration C. The ration should read mixed hay 9.0 lbs, barley straw 15.0 lbs.

BEEF

USING A TRACE MINERAL SALT

Livestock producers are encouraged to use the loose trace mineral salt containing 0.25% copper and 0.75% zinc rather than the blue and red block salts. To meet animal requirements, a cow must consume about 30 to 40 grams of trace mineral salt per day. In meaningful terms, that means 100 cows would consume 1 bag of trace mineral salt in 6 to 8 days. If intake is considerably higher or lower than this estimate, producers can make adjustments to either reduce or increase intake of salt.

IMPLANT ALL FEEDER CATTLE

A $1.50 invested in a growth implant will return from 15 to 25 lbs of live weight gain. That translates into a potential return of $8 to $12 for each $1.00 invested.

STANDARDS FOR SOW CULLING

Hard and fast guidelines for culling sows cannot be given. Producers must develop a herd culling policy rather than take a haphazard approach. The ultimate culling program prepares for the worst eventuality by having sufficient replacement gilts available in a "gilt pool" to take the place of unforeseen sow disposals.

WHEN TO CULL

Surveys show the average sow produces four to five litters before being culled. A recent Kansas study of sow performance involving 3,493 litters reported that:

- gilts farrowed the smallest litters;
- litter size continued to increase up the fifth litter;
- number of pigs weaned decreased after the fifth litter;
- best 25-day litter weight were from third parity sows;
- stillbirths were lowest in the third litter but increased thereafter.

EFFECT OF PARITY ON NUMBER BORN LIVE AND WEANED

Parity	No. Litters	Avg. Born Live	Avg. Weaned	25-day Litter Weaning Weight, lbs	Avg. Stillborns
1	603	8.72	8.27	109.3	.46
2	597	9.05	8.53	119.3	.40
3	592	9.74	8.61	121.3	.38
4	518	10.02	8.51	119.0	.44
5	422	10.32	8.48	117.4	.56
6	316	10.16	8.23	113.3	.69
7	220	10.42	8.17	112.8	.84
8	123	10.01	7.87	112.3	1.05
9	51	10.40	7.77	115.2	1.19
10	51	10.35	7.33	102.2	.89

SOURCE: KANSAS STATE, 1983

WHAT TO CULL

The following guidelines can be used for developing a culling strategy:

- Cull sows that fail to breed on two consecutive matings. Do not jeopardize the herd average for numbers born by having too many gilts in the herd.
- Cull sows that are lame, have non-functional udder sections, or have poor temperament. These sows are poor mothers and often difficult to handle.
- Cull sows that produce pigs that are consistently below average in birth weight, growth rate and carcass quality.
- Cull sows that produce two consecutive poor litters or if the sow's litter size is less than the herd's gilt average.

PEN CONDITIONS DICTATE PIG PERFORMANCE

Pen comfort is essential if maximum pig performance is to be attained. Overcrowding, a result of bad planning in required accommodations or in pig flow can trigger disease situations. Overcrowding combined with poor pen design is often the major cause of dirty pens in feeder barns.

PEN AND GROUP SIZE

Overstocking is either having too many pigs for the floor space or too many pigs in one group regardless of the amount of floor space. The following table outlines the recommended floor space allowances for feeder pigs.

WEIGHT OF PIG	MAXIMUM FLOOR SPACE
50 lb (23 kg)	2 ft² (0.19 m²)
100 lb (45 kg)	4 ft² (0.37 m²)
150 lb (68 kg)	6 ft² (0.56 m²)
200 lb (91 kg)	8 ft² (0.74 m²)
225 lb (102 kg)	9 ft² (0.84 m²)

Pen size dictates the number of pigs per group. Post-weaning groups should always be under 20 head with one to two litters per pen as ideal. Pens for groups numbering about 20 to 24 grower pigs per pen and 10 to 12 finisher pigs per pen have an advantage in terms of performance.

EFFECT OF NUMBER PIGS PER GROUP ON LEVEL OF PERFORMANCE

	Pigs/Pen	Feed/Gain
Growing Pigs:	16	2.87
	32	2.98
Finishing Pigs:	8	3.10
	16	3.42

SOURCE: JENSEN AND CURTIS, 1976

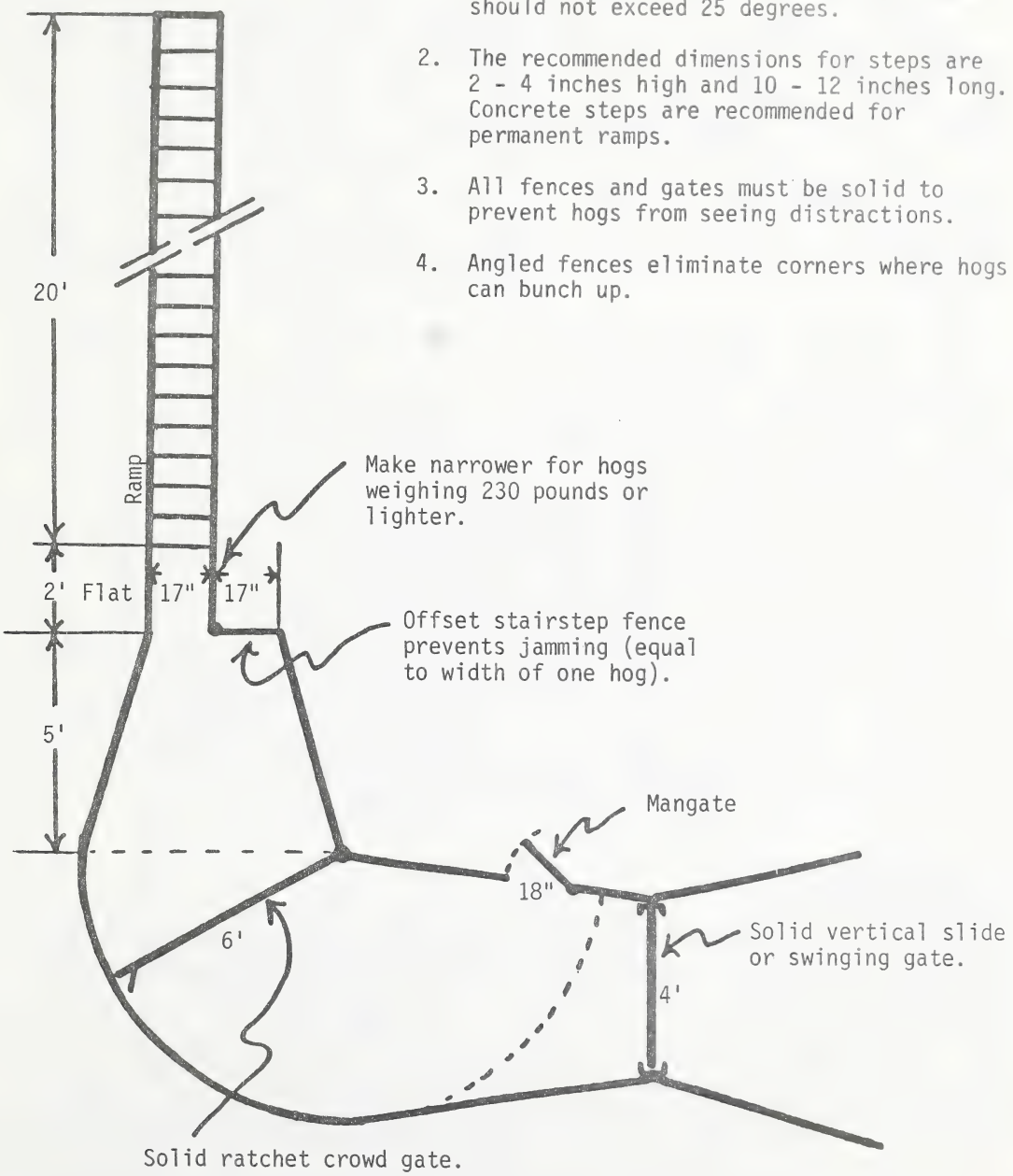
PEN DESIGN

Pen design is basic in establishing proper dunging habits. A number of factors play a part in training the pig. Some factors must be planned during pen construction while others must be part of the ongoing management program. Factors to consider are:

1. Pens should be rectangular with a length:width ratio of 2.5:1 to 3:1.
2. Have a solid partition through the sleeping area.
3. Have a mesh pen partition through the slatted or dunging area.
4. Locate the feeder in the fence-line in the sleeping area.
5. Locate the waterer over the desired dunging area.
6. Provide a two-inch step down from sleeping to dunging area.
7. Floor feed in sleeping area 2-3 days post arrival.
8. Wet the desired dunging area 2-3 days post arrival.
9. Use sprinklers over the dunging area in the summer.
10. Avoid too much or not enough air movement.

HOG LOADING RAMP WITH SINGLE-FILE CHUTE

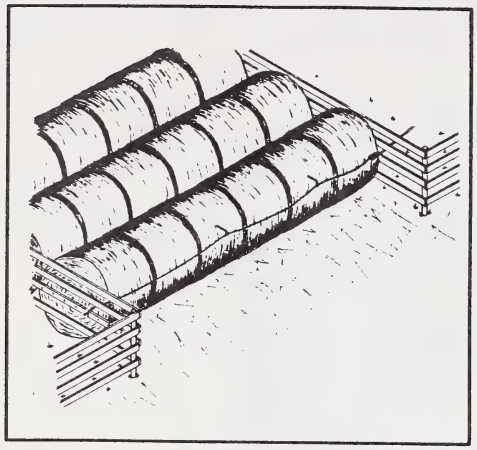
1. The grade on a nonadjustable ramp should not exceed 20 degrees. Adjustable ramps should not exceed 25 degrees.
2. The recommended dimensions for steps are 2 - 4 inches high and 10 - 12 inches long. Concrete steps are recommended for permanent ramps.
3. All fences and gates must be solid to prevent hogs from seeing distractions.
4. Angled fences eliminate corners where hogs can bunch up.



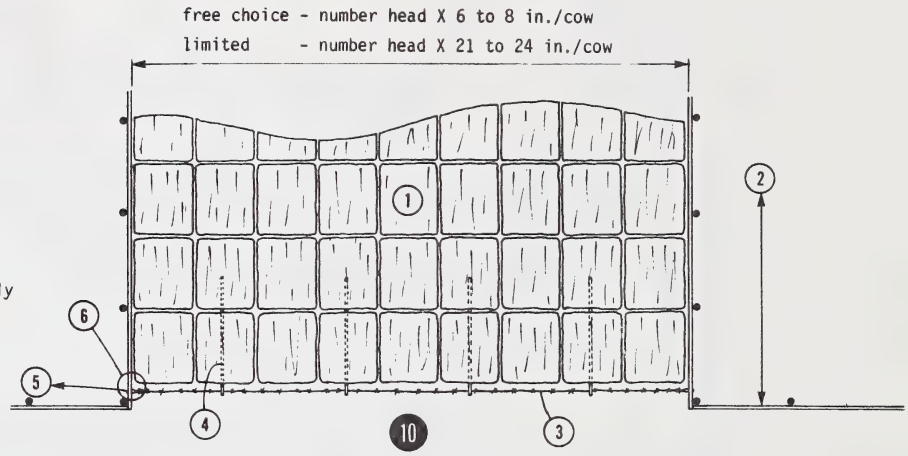
Source: Temple Grandin, 1984.

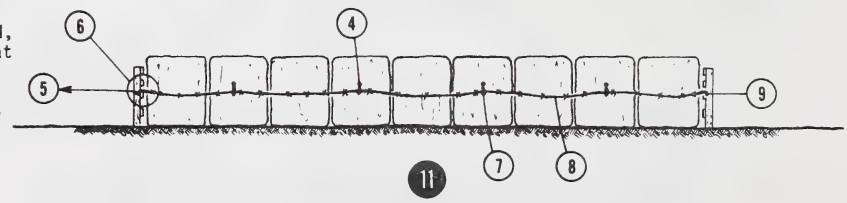
POSITIVE SHOCK FEEDING OF BALES OR STACKS

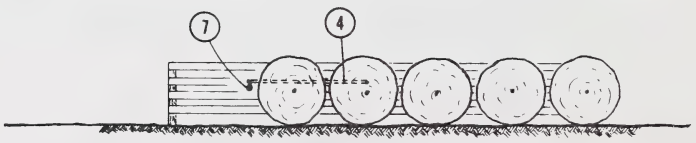
CANADA PLAN Q-1640



Cattle can be fed forage without having to move feed to the animals. Electrically charged wire feeders are a proven method that can keep wastage to a minimum. Feed handling is reduced and manure is spread over a larger area, not confined to one feeding location. Large round bales are stored in a well-drained area. This area should slope away from the feeding face to provide drainage away from the stored forage. The cattle eat into the face of the roughage rather than the operator having to move the feed to the cattle.







1. large round bales
2. to accommodate desired feed supply
3. positive shock electric wire
4. ¼ inch rod X 118 inches long for wire support
5. to solid state fence charger
6. see detail
7. nylon rope with 8 inch drop, attached to eyelet welded to rod, to support positive shock wire at 35 inches height
8. 6 inch wire sag between supports
9. adjust rail to support wire at 35 inches height (see detail)
10. PLAN VIEW
11. FRONT VIEW
12. SIDE VIEW

Caution: Do not place large round bales close together until after rainy weather has passed.

CHOPPING ROUGHAGE FOR BEEF COWS

Tub grinders and grinder mixer mills are often used to either chop roughage into 1" to 4" lengths or grind roughage through a ½" screen. Since chopping appears more popular than grinding forages, the following comments provide information to answer the question: For a beef cow herd, is it justifiable to chop forage?

1. If an animal, such as a mature beef cow is capable of consuming adequate roughage to meet nutritional requirements without processing, then processing cannot be justified on the basis of improved performance.

2. Chopping (2½ - 4" screen) long or baled hay appears to have little consistent effect on animal response. That is, animals consume similar amounts of chopped or long forage and gain is similar. But grinding (½" screen) will increase intake and gain and improve feed efficiency.

3. The Forage Machinery Costs as a Guide to Custom Rates booklet indicates the total machine cost including tractor, tub grinder and labor is $55 to $90 per hour. At a capacity of 6 to 8 tons per hours, the cost of chopping would approach $10/hour. However, in some operations the cost could approach $15/hour. The factors affecting the cost of processing would include:

   a) screen size - an increase in screen size by 50% generally increases grinding capacity by 50%
   b) moisture level - increasing moisture level increases fuel consumption and reduces work rate per hour
   c) kind of forage - legume hays may tend to grind easier than grass hays

   The cost of grinding forages would be considerably higher than chopping forages (i.e: $24 to $32/ton vs $10 to $15/ton for chopping).

4. Chopping of forages reduces wastage, but the reduction in wastage may not be sufficient to justify chopping.

REDUCTION IN WASTAGE REQUIRED TO JUSTIFY CHOPPING IF CHOPPING COST IS:

Cost of Forage	$10/ton	$15/ton
$ 25/ton	40%	60%
$ 40/ton	25	38
$ 60/ton	17	26
$ 80/ton	13	19
$100/ton	10	15

5. In addition to cost, the other disadvantages of chopping are increased dust, loss of nutrients in the dust, and increased susceptibility to bloat from chopped legume hays.

6. Chopping allows for mixing of less palatable feeds with more acceptable feeds.

VITAMIN ADE FOR THE BEEF COW HERD

Occasionally vitamin supplementation is neglected on predominant hay diets with few adverse affects on production. However, with straw, greenfeed or grain diets, vitamins must be mixed with the feed or injected on a routine basis. The following points may be useful in ensuring adequate vitamin supplementation this winter.

1. Green leafy forages contain carotene which the animal is able to convert into Vitamin A. The carotene content of forages will vary with storage conditions and time. Grains do not contain carotene.

2. Vitamins are stored within the body and slowly released as required. The daily requirements for Vitamin A are:

Calf or Feeder	30,000 I.U.
Mature Cow	40,000 I.U.
Milking Beef Cow	60,000 I.U.

3. The potency of commercial vitamin mixes vary. Injectable Vitamin AD has a common potency of 500,000 to 1,000,000 IU/ml, whereas powdered Vitmain ADE has a potency of 8 to 10 million IU/kg. Many veterinarians sell a Triple Strength product which contains 30 million IU/kg plus selenium. It is important to know the potency of the product. Four grams of a 10 million potency product supplies sufficient Vitamin A for a pregnant beef cow as does 1.34 grams of a 30 million potency product.

4. A 5 ml (500,000 potency) injection of Vitamin AD to a pregnant cow will last approximately 60 days. Therefore, a second and third injection will be required over the winter. Note: The vitamin E in an injectable product is present to stabilize the Vitmains A and D, not to supplement the cow with Vitamin E.

5. Rather than feeding vitamins daily, it could be fed every 2 to 4 weeks. The vitamins could be mixed with a small amount of crushed grain or mixed with a 1 to 3 day supply of salt and mineral. Vitmains could be dribbled on top of the daily silage allowance. For example, 100 cows would require (100 X 40,000 X 14 days) or 56 million IU or 5.6 kg (12.3 lbs) of a 10 million potency product once every second week.

6. The liquid and dry commercial protein supplements (such as 32%) contain vitmains. The Vitamin ADE requirements will be met when feeding 0.9 lbs per head day of these products). Commercial mineral supplements also contain vitamins, but do not rely on vitamins in prepared mineral mixes to supply the total animal requirement.

7. Supplemental vitamins can be fed by addition to the salt, but salt intake must be known. The vitamins must be mixed with a maximum 3 day supply of salt. Even though vitamins are stabilized, the presence heavy metals and wet conditions will degrade their potency.

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JANUARY 1986

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Beef 'n Bacon

INTRODUCTION

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Editors: Rob Hand, Regional Livestock Specialist
Marvin Salomons, Regional Swine Specialist
674-8248 or 134-1248 (Rite)

SWINE

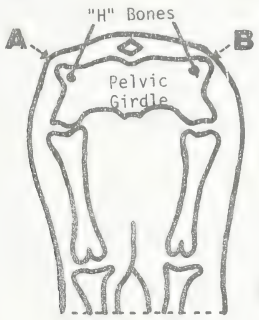
DETERMINING FARROWING INTERVALS

The "farrowing interval" refers to the number of days a sow takes between successive farrowings. Producers often use the farrowing interval as part of a herd culling program. Sows that do not meet the specified herd standard are considered for culling.

Farrowing intervals can be determined using simple arithmetic. Sows farrow on the 114th day of gestation, nurse their piglets for 28 days, are weaned and rebred within 5 days. If everything goes as scheduled, she should be back in the crate in 147 days (114 + 28 + 5). If she recycles she will then take 168 days (147 + 21). Under this management approach, setting a herd standard that sows must not average over 160 days between farrowings may be practical.

CONDITION SCORING SOWS

Judging sow body condition strictly by visual means can be very misleading. An easy and practical alternative combines visual appraisal with a personal scoring system. A close correlation exists between the amount of fat cover over the "H" bone at the top-rear of the pelvic girdle and the general level of body fat. Spending 30 minutes each week scoring sows can mean improvements in herd productivity and reductions in feed intake.



A & B indicate finger pressure points. Sow A looks thin, but has adequate fat reserves. Sow B looks fat, but fat cover over H bone is shallow. Sow B is low in fat reserves.

SCORING PROCEDURE

1. Locate the "H" bone pinnacles at points A and B (shown above) with fairly firm finger pressure.
2. Using your finger-pressure guide, determine a score based on the following table. One unit change is roughly equivalent to 0.1" (2.5 mm) change in P_2 (fatness over the last rib). Score consistently.

SCORE	CONDITION	BACKFAT	LOCATION OF"H" BONE	SHAPE OF BODY ETC.
5	Overfat	1" (25 mm)	No detection	Bulbous
4	Fat	.8" (20 mm)	No detection	Tending to bulge
3½	Rather Fat		Great difficulty finding it	Tube-shaped
3	Normal	.7" (18 mm)	Can only just be felt	Tube-shaped
2½	Somewhat thin		Easily located or visible protrusion	Tube-shaped but with flat sides
1-2	Thin	.6" (15 mm)	Painfully obvious and easily visible	Bone structure apparent (ribs/backbone)

3. Score of 3 is ideal, 3½ is permissible before farrowing and 2½ at weaning. Only 10% of the herd should be 2's.
4. Adjust feed intake based on scores.
5. Scoring should be done at breeding, before farrowing and throughout lactation. Do not condition score gilts.

From: J. Gadd, 1983.

RAISING ORPHAN PIGS

Raising piglets without a sow requires a great deal of attention and care. Artificial rearing can be a useful tool in units with high average litter sizes. A greater benefit can be achieved by artificially rearing orphan piglets or piglets that are poor doers.

FEEDING

It is essential that piglets receive colostrum as soon as possible after birth. Colostrum contains immunoglobulins, a rich source of antibodies, that provide resistance to disease. Colostrum can be obtained from newly farrowed sows or by using cow colostrum. Colostrum can be frozen and stored indefinitely in ice cube trays. One cube per piglet (about 30 ml) can be thawed and warmed to 37°C before feeding. Do not heat colostrum above 60°C.

Commercial milk replacers have been successfully used to raise orphan pigs. Commercial products contain a rich highly digestible source of nutrients. These products stay in solution when mixed and can be either hand-fed or used in automatic free-choice feeding systems. Feeding directions on the label should be strictly followed.

A homemade milk replacer can be used if commercial replacers are not available.

A suggested mixture:

1 litre cow's milk (or 1 litre water + 250 g skim milk powder)
2 tablespoons sugar (or 40 ml honey or 40 ml household vegetable oil)
1 raw egg
Antibiotic supplement

Feed 60 ml twelve times per day when pigs are 1 - 3 days of age increasing to 250 ml six times per day when pigs are 10 - 14 days of age. Over consumption can cause scouring. Care should be taken to ensure that piglets do not get wet.

Offer a very highly digestible creep feed starting at 10 days of age and provide supplemental water by 14 days.

HOUSING AND TEMEPERATURE

Provide a raised, clean, warm, draft-free environment. At 2 - 3 days of age piglets require a sleeping area temperature of 30 - 32°C with a maximum of 5 - 6°C lower in the feeding area. Preferably, pigs should be kept in "supplementary rearing boxes" with solid floors in the sleeping areas and fully slatted floors in the feeding-dunging areas.

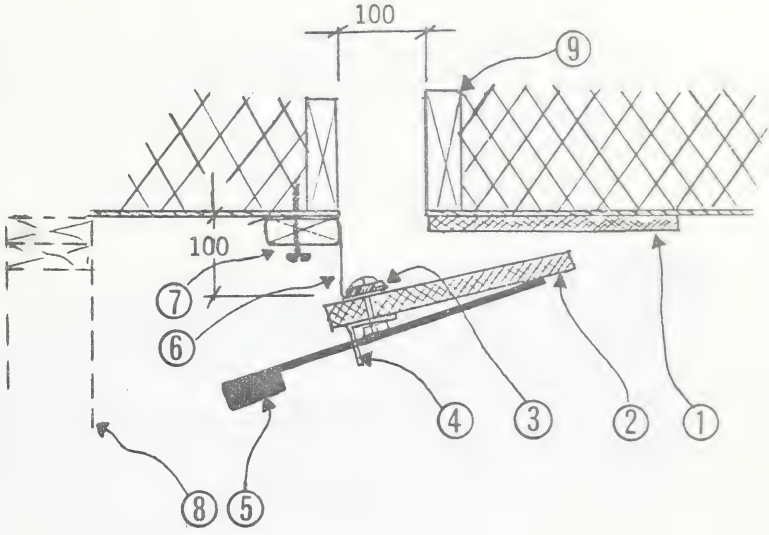
HYGIENE

Supplementary rearing can only be successful if strict attention to cleanliness is followed. All parts of the rearing cage should be easily removed and cleaned on a regular, preferably daily basis. At least daily cleaning of liquid automated or hand-feeding dispensers is required. Discuss the health problems of orphan pigs with your veterinarian.

SELF-ADJUSTING AIR INLET

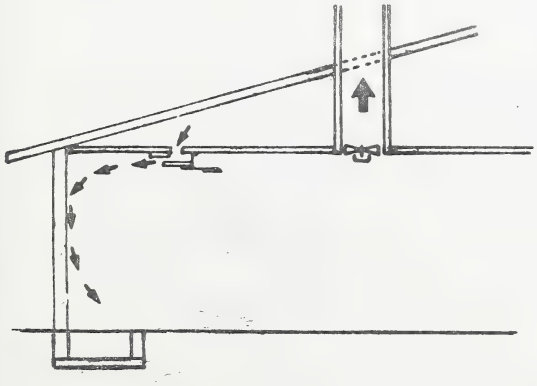
This air inlet is counter-balanced against the air pressure to open automatically for increased air flow and close when ventilation is reduced. In practice the counter weights are adjusted to close the baffle when fans are off and open against light finger pressure when fans are running. More detailed construction, location and adjustment information can be obtained by contacting your Regional Agricultural Engineer.

1 25 x 300 mm rigid foam strip
2 38 x 300 mm rigid foam baffle
3 plywood strip to hold ⑥ chrome or nylon bolt through ④
4 38 x 38 mm x 24 ga. steel angle drill for ⑤ every 1.2 m
5 counter weight approx. 500 - 700 gm (16-24 oz)
6 rinforced plastic fabric
7 2 x 4, screw-attach to replace ⑥
8 outside wall (for side inlet)
9 insulation stops

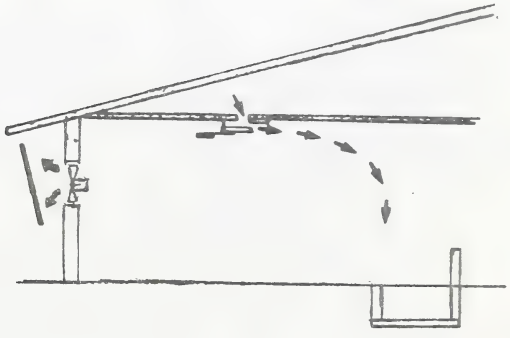


Recommended air flow patterns for:

A. Outside Gutters



B. Center Gutters

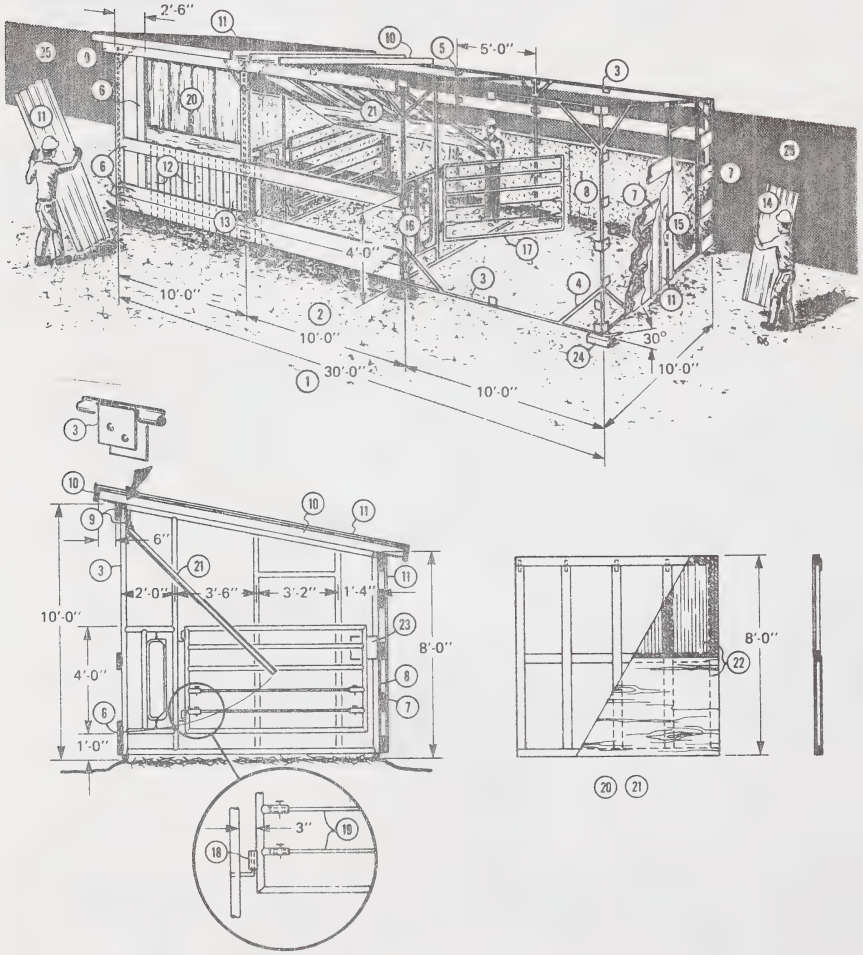


PORTABLE PIPE FRAME CALVING SHELTER

CANADA PLAN 1353

Sheds consist of either two or three calving pens about 10 ft square. Each pen has a built-in pipe frame headgate (an old dairy stanchion), a crowding gate and convenient attachments for cow treatment or for assisting a difficult calving. When calving in freezing weather, additional heat can be provided to the newborn calf for the first 12-18 hours, after which calf and mother are turned out with the rest of the herd.

Swing-up front doors made of steel siding and wood framing can be opened up and fastened to the underside of the roof in mild weather, thus allowing sunshine into the bedded area. The calf creep gates in the front wall can then be opened to use the shed as a calf rest area.



1 three-pen calving shelter
2 for two-pen calving shelter, omit center section
3 welded 2½" standard pipe, or 2¼" drill stem, frame with steel tabs welded on for mounting (6) and (7)
4 all corner braces 2'-0" long
5 center post at back wall only, for (1)
6 2" × 8" wood frame, bolted to tabs on pipes (3)
7 2" × 8" girts @ 2'-0" oc, sides and back
8 8'-0" × 4'-0" × ⅜" exterior plywood or waferboard lining at sides and back wall
9 2 – 2" × 8" headers, one each side of pipe frame, to support roof and doors (20) & (21)
10 2" × 4" × 12'-0" rafters @ 2'-0" oc, 1" × 4" purlins @ 1'-6" oc, 2" × 6" face board, 1" × 4" soffit board makes 2" ventilation slot
11 galv. steel roofing
12 2" × 6" × 4'-0" uprights @ 1'-1" oc
13 remove these uprights for calf creep entrance
14 3'-0" × 6'-8" wood frame door
15 screw hooks to hinge catching gate
16 head gate
17 9'-0" crowding gate, 1½" pipes spaced @ 9½" oc
18 hinge made of 1" rod welded to vertical pipe frame, and 4" lengths of 1½" pipe welded to (17)
19 2 – 1" removable pipes inserted into 1½" × 6" pipe, held in place by ⅜" bolt
20 2 – 8'-0" × 8'-0" doors with 2" × 4" frame on flat; fasten with galv. steel straps on uncovered surface
21 8'-0" × 9'-8" center door (made as (20)), omit for two-pen shelter
22 door hinged to (9); exterior side clad with fiberglass translucent panelling top half and ⅜" plywood or metal cladding bottom half; interior bottom half lined with ⅜" waferboard
23 portable 1750 W infra-red quartz electric heater suspended from rear wall 4'-0" above floor; protect heater with framework
24 blocks under shelter, to prevent skids from freezing onto ground
25 back fence or catching gate

REMEMBER THE HERD BULLS

A bull's reproductive potential is influenced by the feeding and management it receives throughout the year. In mid winter, bulls are often neglected. If not separated from the cow herd already, separate the bulls into their own feeding group. Sometimes it is advisable to separate bulls into two feeding groups; one for mature bulls that require no extra care and a second group for young and thin bulls.

A balanced diet throughout the winter will ensure that bulls are in moderate condition at the start of the breeding season. The following rations will meet, without allowance for wastage, the energy and protein needs on an 1800 lb mature bull. For days when the temperature is below -18°C, the bulls will require an additional 4.0 lbs of grain for every 10°C drop. Free choice a suitable calcium phosphorus mineral and trace mineral salt. Vitamin ADE can be injected every 2 months or fed. A 10 million potency product fed at 0.013 lbs/day or 0.18 lbs per two weeks will supply vitamin ADE requirements.

	A	B	C	D
Alfalfa Brome Hay	30	13	-	-
Barley Straw	-	20	22	-
Barley Grain	-	-	5	-
32% Supplement	-	-	2	-
Cereal Silage (65% H_2O)	-	-	-	70

During late winter bulls can become heavily infested with lice. If severe, lice can reduce body condition, cause anemia, and may reduce sperm count. In mid winter it is desirable to inspect bulls for lice and if present treat with the appropriate insecticide registered for use.

On many farms bulls are expected to winter in very small pens. But bulls need the opportunity for walking. Locating bulls in large pens or a field away from the cows can encourage movement. Shelter with bedding in the form of bush, windbreak fence or open front shed should be available.

As spring approaches, bulls must be evaluated for good feet and legs including absence of corns affecting movement, absence of cracks in hooves, absence of swollen joints and properly trimmed feet. A reproductive appraisal by a qualified veterinarian assessing sex drive, mating ability and semen production is recommended. Problems arise when we assume bulls to be of sound breeding value.

(Adopted from: Feeding and Management of Herd Bulls Agdex 420/21)

CHOOSING THE CORRECT MINERAL

Much confusion exists when choosing which mineral to purchase. Many producers rely on a range mineral containing equal parts calcium and phosphorus regardless of the type of forage fed. But, there are circumstances when either a high calcium or high phosphorus mineral are required.

	as fed	
	% Ca	% P
Grain	0.07	0.35
Cereal Straw	0.30	0.09
Grass Hay	0.40	0.14
Greenfeed	0.44	0.19
Mixed Hay	1.00	0.17
Legume Hay	1.50	0.19

The above table gives the appropriate calcium and phosphorus content of various feedstuffs. All roughages contain more calcium than phosphorus but cereal straw, grass hay and greenfeed (cereal silage) have a narrow ratio of 2 to 3 parts of calcium to every 1 part of phosphorus. Mixed and legume hays or silages have as much wider ratio approaching 6 parts of calcium to every 1 part of phosphorus. Grains are totally reverse having 1 part of calcium to every 5 parts of phosphorus.

To ensure proper uptake of both calcium and phosphorus, cattle require diets containing from 1.5 to 5.0 parts of calcium to every 1 part of phosphorus. The following comments may be helpful to ensure a proper ratio.

1. "Range" mineral contains equal parts of calcium and phosphorus and is most suitable for cattle consuming predominantly legume-grass or grass feeds. It is the most common mineral sold, especially during the breeding season.

2. High phosphorus mineral, such as a 0:24 or 13:26 is required on diets containing greater than 80% legume. These minerals are especially important in supplying additional phosphorus for cows after calving, but palatability can be a problem.

3. High calcium minerals containing 2 parts calcium to 1 part phosphorus such as a 20:9 can be fed with greenfeed, straw, grass hay or grain diets. This is a good mineral for feedlot calves or pregnant cows on straw-grain diets.

4. Limestone contains 37.5% calcium and is fed on high grain diets or straw-grain diets. Limestone is reasonably cheap and very palatable. Like a high calcium mineral, limestone is most suitable for feedlot calves.

5. To improve palatability, mineral can be mixed with trace mineral salt. After calving, mix equal salt and mineral together. For the cow herd in fall through to late winter, mix at 2/3 salt to 1/3 mineral. Adding 2% cooking oil will alleviate caking of minerals. Supply one mineral feeder for each 50 head of cattle.

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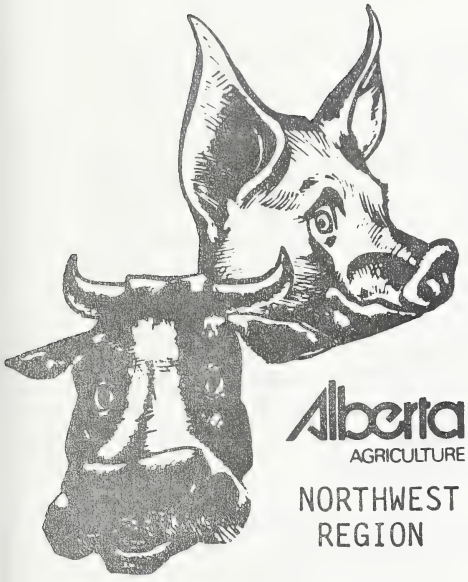

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Beef 'n Bacon

INTRODUCTION

This is the fifth of eight monthly issues of Beef'n Bacon. The newsletter is being mailed to approximately 2500 beef and hog producers in the northwest region. Our intention is to give a brief overview of the subject matter presented. More information on all articles is available by contacting your District Agriculture office or the editors.

Editors: Rob Hand, Regional Livestock Specialist
Marvin Salomons, Regional Swine Specialist
674-8248 or 134-1248 (Rite)

BEEF

CULL COW PRICES ARE SEASONAL

Monthly Average D1, D2 Cows, Edmonton ($/cwt)

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY
1980 - 81	48.4	49.0	47.2	49.4	50.2	52.5	52.2
1981 - 82	39.5	38.1	40.0	39.2	46.7	45.1	50.6
1982 - 83	36.1	37.5	39.9	43.6	51.7	51.6	53.0
1983 - 84	38.2	41.8	43.4	46.2	51.7	51.8	49.6
1984 - 85	41.9	46.1	45.5	49.0	53.1	51.0	51.5

Based on the above table, the following points can be considered.

1. Cow prices display seasonal patterns based on the demand and number of slaughter cows for sale. November and December are traditionally the months of lowest cow prices.

2. April or May is an appropriate time to sell cows that failed to calf or lost their calf. These months represent the peak prices for the cull cow market.

3. Feeding for rapid gain over the winter may not necessarily be the most profitable option when feeding cull cows older than 5 years of age. The rising cow market from fall to spring is the biggest factor affecting profitability of older cows. Rations designed for low winter gains can be profitable in a rising cow market.

4. Cull cows less than 5 years of age benefit the most from high grain diets. These cows have the potential to grade A, B, or C and are less susceptible to overfattening than older cows. Over a 10 week grain feeding period, young, thin cull cows could gain up to 240 lbs with an overall feed efficiency less than 10 lbs of feed per lb of gain. Grain fed cull cows need to be rail graded for the producer to benefit from an improved carcass grade.

TURN THE SCREWS ON SELF-FEEDER WASTE

COST OF WASTAGE

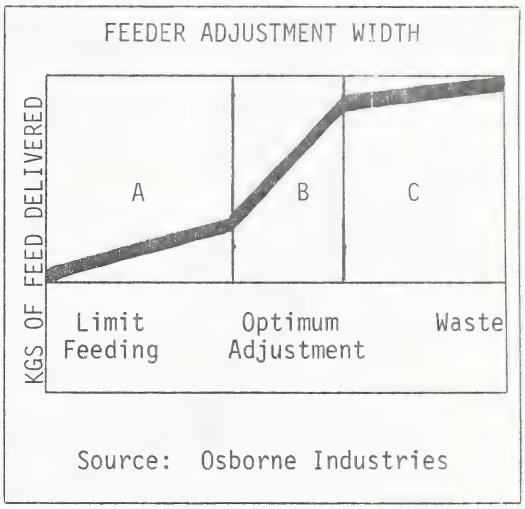
The familiar saying is if you can see feed on the floor or in the trough you're probably wasting 10%. Researchers now say that you're wasting feed even if you can see the bottom of the trough.

Recent estimates indicate that in the feeder barn where the problem is at its worst, poor management and improper self-feeder adjustment accounts for 10 to 30% of the feed being wasted. Assuming an 80 kg gain in a feeder pig with a conversion of 3.5:1, the total feed consumed would be 280 kg. At a cost of $160 per tonne the total feed bill could be $44.80 per pig. If 10% of the feed was wasted it would cost $4.80 per pig; $13.44 if wastage was 30%.

FEED FLOW

The most obvious place to start cutting wastage is at the self-feeder itself. In most instances this can be a time consuming and frustrating task. In the typical self-feeder, feed-flow compared to adjustment width in the flow gate doesn't follow a linear curve.

As the flow-gate is opened up the amount of feed delivered is increased (A). When the width opening reaches a certain point determined by the fineness of grind, the amount of feed delivered increases dramatically (B). The next stage, determined mainly by the shape of the trough, the feed flow levels off again (C).



Source: Osborne Industries

TIPS ON REDUCING WASTAGE

1. Maintain proper feeder adjustment. A fine line exists between limit feeding and wasting. The standard 0.75 inch feeder adjustment will slightly limit-feed pigs. Monitor to know what the setting should be. The easier feeders are to adjust (without tools) the better they will keep adjusted.
2. Buy the right feeder. Concrete and stainless steel feeders are sturdy, clean easy, and last 10 to 15 years. Plastic feeders should have as few seams as possible and seams should reinforce themselves. Troughs with lips or holes tend to reduce waste.
3. Keep the feeder working. Keep working parts and the trough of the feeder free of old hardened feed.
4. Don't overcrowd the feeder. No more and no less than four pigs per feeder hole will allow pigs to all eat and at the same time keep them busy enough so they won't waste feed.

(Adapted from Pork '85)

MAKING USE OF A GILT POOL

KEEPING FARROWING FACILITIES FULL

One of the leading causes of lost production in a swine operation occurs when replacement gilts are not immediately available to take the place of culled sows. Consider the fact that only about 75% of sows weaned as a group will eventually farrow as a group. In addition, even under ideal conditions conception rates above 90% are difficult to achieve. The lack of foresight and planning can lead to disasters in the farrowing unit. If farrowing crates are to be kept full it is essential that a pool of bred gilts be always available to fill gaps in the breeding herd.

THE GILT POOL

The "gilt pool" is comprised of young bred females deemed as potential replacements. This gilt pool can be effectively operated out of the finishing unit; supplying bred replacements for sows culled for infertility, lameness, age, poor performance, etc. A gilt bred at a desired time will always be available to fill the empty place left in a breeding group.

OPERATING A GILT POOL

1. Select gilts in the finishing unit at 65 to 70 kg weight. Select at least three replacement gilts for each pregnant gilt required. Select more gilts when breeding problems are likely to be encountered.

2. Divide gilts into four pens. Turn over one pen in the pool each week.

3. Expose gilts daily to a boar for approximately 20 minutes. Rotate boars.

4. Cull all noncycling and late-maturing gilts after 4 weeks in the pool.

5. Breed gilts on second heat.

6. Ship unbred gilts at optimum market weight.

7. Ship or sell excess bred gilts.

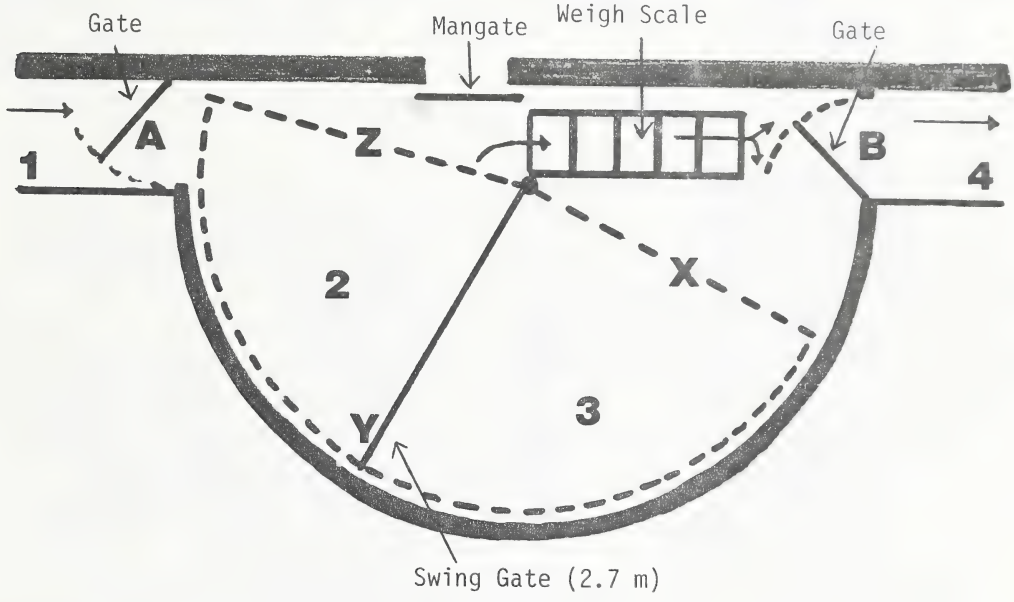
GILT POOL RECORDS

It is important that gilts from the finishing barn be recorded both in and out. It is also essential that heat cycles and breeding dates be recorded. A good example of a gilt pool record is shown below.

DATE	TATTOO # GILTS IN	DATE 1ST BOAR CONTACT	DATES 1ST HEAT	DATES 2ND HEAT	DATE(S) BRED	BOARS USED		DISPOSAL OF GILTS				NOTES
								DATE	BR'D BARN	FIN'R BARN	SOLD	

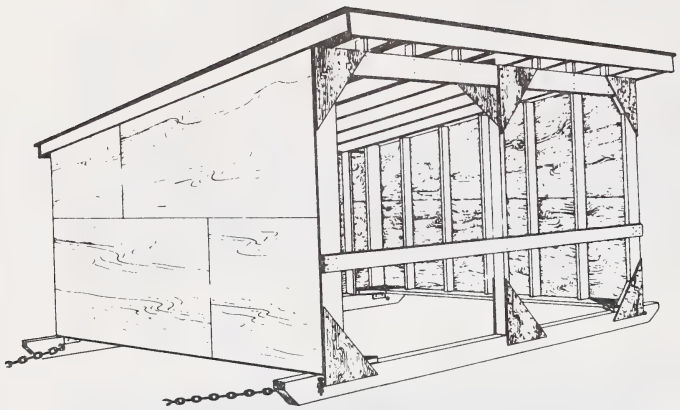
WEIGHING-SORTING ROOM FOR PIGS

This plan illustrates a well-designed weighing and/or sorting room for pigs of any age. The stationary weigh scales improves accuracy as well improves conditions for the recorder. Placing the weigh scale in a pit so the weigh scale floor is equal to floor level will make pigs more willing to enter the scale. All gates and partitions should have solid walls. Space requirements and expense are the main limitations.



1. Pigs enter room via passage 1. Pigs are held in area 2 with gate A closed. Swing gate is in position X.
2. As pigs are weighed the swing gate is pushed around through position Y and Z.
3. Pigs can be sorted using gate B to areas 3 or 4.
4. Pigs held in area 3 can eventually be returned to pens through gate A.
5. Pigs going to market can be held in areas 3 or 4. Area 4 can be the passageway to the loading ramp.

CALF RANGE SHELTER



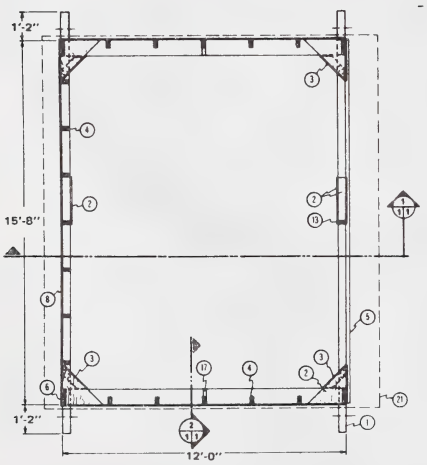
Portable calf shelters provide additional shelter for young calves during chilly wet weather. This plan is for a shelter 12 X 16 ft, suitable for up to 20 calves. Some producers may want to reduce this to a 10-calf shelter (8 X 12 ft).

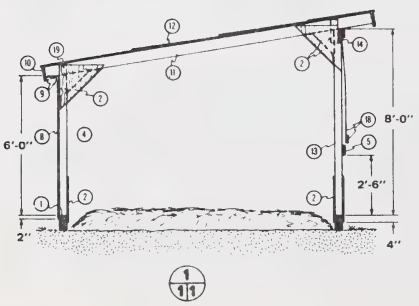
Locate the shelter on a well-drained knoll with the open front facing south to benefit from spring sunshine.

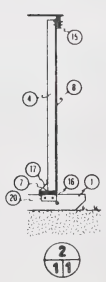
If the site is exposed to strong winds, add a weighted canvas or burlap curtain, and anchor the shed at four corners by wiring it down to stakes driven into the ground. Bed the floor liberally with straw, wood chips or other dry bedding material. When the manure pack needs cleaning out, pry the skids carefully out of the manure pack, then tow the shed off the bedded area to a new site. Clean and spread the manure after the shed has been removed.

CALF RANGE SHELTER

PLAN 1352 (WAS 1302) REV. 79:4







1. 4" x 8" x18'-0" skids, 1½" hole at each end for tow chain
2. cut plywood or Aspenite gussets diagonally from 3/8" x 2'-0" squares, 14 gussets required, 1½" large-head galvanized roofing nails to frames, 2" x 4" filler fitted between gussets
3. 5" spiral nails through gusset and filler block to skid (1)
4. 2" x 4" studs @ 2'-0" oc
5. 2" x 6" guard, keeps cows outside
6. 2" x 8" x corner studs
7. 2" x 8" x 12.-0" sill
8. 3/8" exterior sheathing plywood or Aspenite, rear wall cladding nailed from inside to (9)
9. 1" x 4" soffit board, 2" ventilation slot
10. 1" x 8" face board
11. 2" x 6" x 14'-0" rafters @ 2'-0" oc (25 psf roof load)
12. 3/8" exterior sheathing plywood or Aspenite, caulk all joints and lap 3" at horizontal joints, nail with 1½" large-head galv. roofing nails
13. 2" x 4" center post, notch for (14)
14. 2" x 8" beam
15. end rafter spiked from outside thru sheathing
16. endwall cladding stops 1/4" above bottom of sill
17. steel straps nailed to stud and nailed around edge of (7)
18. optional canvas wind flap, weighted with 2" x 4" stiffener at bottom edge
19. 2" x 4" x 1'-0" rafter tie blocks @ 2'-0" oc except at end and center rafters (12 required)
20. 1/4" x 3" x 3" x 8" lengths steel angle bolted to skids (1) and sill (7) at each corner
21. roof line above

USING SELENIUM PRODUCTS

Additional selenium is required in basically all livestock diets in north central Alberta. Supplying 1 to 2 mg/head/day for cattle is generally adequate, but there are instances when veterinarians might recommend 3 or 4 mg/head/day of selenium. The upper limit above which selenium can be toxic for cattle is approximately 20 mg/head/day.

Three common sources of selenium are: 1) certain trace mineral salts at 25 ppm, 2) range minerals at 10 ppm or 3) triple strength vitamin ADE products from veterinarians at 1.05 mg of selenium per 30,000 IU of vitamin A. Livestock producers will often feed more than one of these products at any one time. This raises the question. "Is it safe to feed selenium from more than one product?" The following table gives an indication of supplementation levels.

MILLIGRAMS (mg) SELENIUM SUPPLIED/DAY AT VARIOUS PRODUCT INTAKES

INTAKE/DAY	LOW	MED	HIGH
Salt	20g	40g	80g
Mineral	15g	40g	80g
Vitamin	30,000	40,000	80,000
MG SELENIUM/DAY	**LOW**	**MED**	**HIGH**
Salt (25 ppm)	0.5	1.0	2.0
Mineral (10 ppm)	.15	0.4	0.8
Triple Strength Vitamin A (1:05 mg Se/30,000 IU Vit A)	1.05	1.4	2.8
TOTAL	1.70	2.8	5.6

Based on the amount of selenium supplied in the table and the typical amount of selenium in locally grown feedstuffs, it appears safe to feed all three sources together. However, if you are using the Triple Strength Vitamin ADE with Se, the required 1 to 2.0 mg of selenium is easily supplied with no need for additional supplementation. If range mineral is used to supply the extra selenium, excessively large amounts of mineral would be required. However, if you rely on a trace mineral salt, 1 mg of selenium can be supplied by feeding 40 grams of salt. This is equivalent to 100 cows consuming a 25 kg bag of trace mineral salt in 6 days. Feeding a salt and non-prescription mineral that both contain selenium should not cause problems.

Selenium can be supplemented by injection. Cattle producers will often inject cows close to calving or calves at birth. An injection will meet the requirements for selenium for approximately 45 days. If feeding selenium via the salt or vitamin, a selenium injection should not be required. If in doubt contact your veterinarian.

CATTLE IDENTIFICATION

FOR COWS

- Permanently identify each cow; she should have only one number from birth until she leaves the herd.
- Size and location of identification number should be such that it can be read from several feet away.
- Recommended identification methods include either two eartags or a combination of flexible plastic eartag and ear tattoo.

FOR CALVES

- Permanently identify calves within 2 or 3 days after they are born.
- Identify calves consecutively each year, using the last digit of the year as the first digit of the calf's number (see table).
- Identify calves with plastic or metal eartags.
- Consider the use of a different colored eartag to identify those calves that come from each different sire.

FOR REPLACEMENT HEIFERS

- Use a large, flexible plastic eartag or brand the heifers.
- Give a replacement heifer the same identification number as her tattoo or calf eartag; errors in recordkeeping are reduced if eartag, tattoo and herd numbers are the same.

Recommended Calf Identification Numbering Scheme

Cows in Herd	Year Calf Born	Birth Order	Calf's I.D.
1 to 99	1986	1st	601
1 to 99	1986	17th	617
1 to 99	1987	1st	701
100 to 999	1986	1st	6001
100 to 999	1986	156th	6156
100 to 999	1987	1st	7001

(Adapted from Beef Management System, Alberta Agriculture.)

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Beef 'n Bacon

INTRODUCTION

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674-8248 or 134-1248 (Rite)

BEEF

THE BLUE TAG PROGRAM

With the recent changes in the beef grades, it is worthwhile to consider the Blue Tag Program offered by Agriculture Canada. For a nominal cost, a wealth of information can be obtained not only on fat cattle, but also cull cows and heiferettes. Here is how the program works.

1) Well before the cattle are to be marketed, request a supply of blue tags from: G. Regehr or E. Kovacs (Phone: 420-2800)
Food Production and Inspection Branch
Agriculture Canada
8th Floor, Federal Building
9820 - 107 Street
Edmonton, Alberta T5K 1G2

2) The blue tags are available in groups of 10. The cost depends on the type of blue tag desired. The TUFF-FLEX tag costs $1.00 each plus $3.00 for the applicator. The ALL-FLEX tags cost $2.00 each. The tags are mailed out once payment is received. Make cheques payable to "Receiver General For Canada."

3) Blue tag cattle and cross reference to the animals identification number. When cattle are marketed, inform both the livestock buying office and the Ag. Canada office at the packing plant to ensure that the tag is transferred to the carcass.

4) The Beef Carcass Appraisal Report will be sent to the person purchasing the blue tags.

Beef Carcass Appraisal Report

BLUE TAG NUMBER	ANIMAL TATOO		SEX	WARM CARCASS WT.	AVE. FAT COVER (IN.)	GRADE FAT	RIB EYE AREA (IN.²)	MARBLING	QUALITY GRADE	CUT. EST. %	REMARKS OBSERVATIONS
	HERD LETTERS	NO. AND YR. LETTER									

EARLY CASTRATION ADVANTAGEOUS

The castration of young pigs is being done in about as many ways as there are people doing it. Each person, whether veterinarian or hog producer has their own thoughts as to how and when the operation should be performed. In any event, it must be remembered that although castration is a simple operation it is still a surgical procedure and should be treated as such.

AGE OF CASTRATION

The days of waiting to castrate pigs at 3, 5, or even 10 weeks of age are long past. Castration as early as 1 to 3 days of age has many advantages. The earlier castration is performed the less the stress and setback on the pig. In addition, healing and recovery time is directly proportional to the age of castration and the chances of infections are drastically reduced.

QUICK AND SIMPLE

A simple technique that enables swine producers to castrate pigs at a very young age is outlined below. This procedure can be easily performed single-handed and can coincide with other management procedures, such as giving iron shots.

1. A surgical scalpel handle that accepts a hooked blade is recommended.

2. The pig may be held by the rear legs in either one of two positions. In one position (as shown) the thumb is used to push up the testicles, while in the other position the first finger is used.

3. After the testicle is pushed up and the scrotal skin tightened, the tip of the hooked scalpel blade is pushed through the skin and the blade is directed forward and upward toward the tail.

4. Repeat the procedure on the other testicle.

5. The exposed testicles are pushed out through the incisions. The testicles are grasped separately, pulled upward and removed.

6. Very little bleeding should occur and two small clean incisions should remain. If the incisions are made low enough, the area should drain properly.

If you require a demonstration or further information consult with your veterinarian.

SWINE DEVELOPING HERD GOALS

SETTING STANDARDS

Many standards, particularly those labelled "very good" are unattainable in many pig units. It is unwise to set standards without considering the potential effect on herd performance. The primary decision that affects the standard of performance reached is, in most cases, the choice of weaning age. As weaning age decreases the potential of increased pig output increases. Dropping the weaning age from five weeks to three weeks increases the potential number of litters per sow per year and reduces the farrowing interval (days between successive farrowings). On the other hand, if the units' management and housing is unsatisfactory what you have just gained may be lost in pre-weaning death losses. Choose a weaning age suitable to your operation then apply the appropriate herd standards. Doing the opposite may have adverse effects.

DETERMINING A BREEDING HERD PLAN

Outlined below are steps that can be used in organizing the breeding herd using specific breeding herd standards. Set your own standards and determine the likely output by replacng your figures with those given in the underlined examples.

1. Basic aim: To produce 22 pigs/sow/year.

2. Primary targets:
   - Ave. no. of pigs born alive/litter 10.5
   - Pre and post-weaning mortality (%) 12
   - Ave. weaning to remating interval (days) 13

3. Each sow must produce 24.64 live pigs born/year (22 + 22 x .12 = 24.64).

4. Since the target number born/litter is 10.5 , each sow has to produce 2.34 litters/year (24.64 / 10.5 = 2.34).

5. On this basis weaning age must ave. no more than 28 days.
   - Pregnancy 115 days
   - Nursing 28 days
   - Empty days 13 days
   - Total days 156 days

   156 days x 2.34 litters/year = 365 days

6. If management is suitable for 28 days weaning, continue on to step 7. If not, reset your basic aims and primary targets.

7. At 2.34 litters/sow/year a 100 sow her will have 234 farrowings/year. The most convenient farrowing pattern would be 4.5 farrowings/week or 18 every four weeks.

8. Make realistic allowances for conception rates. To achieve a target of 4.5 farrowings you may need to mate 6 sows. Mating extra sows ensures full farrowing facilities.

9. Production results (100 sow herd):

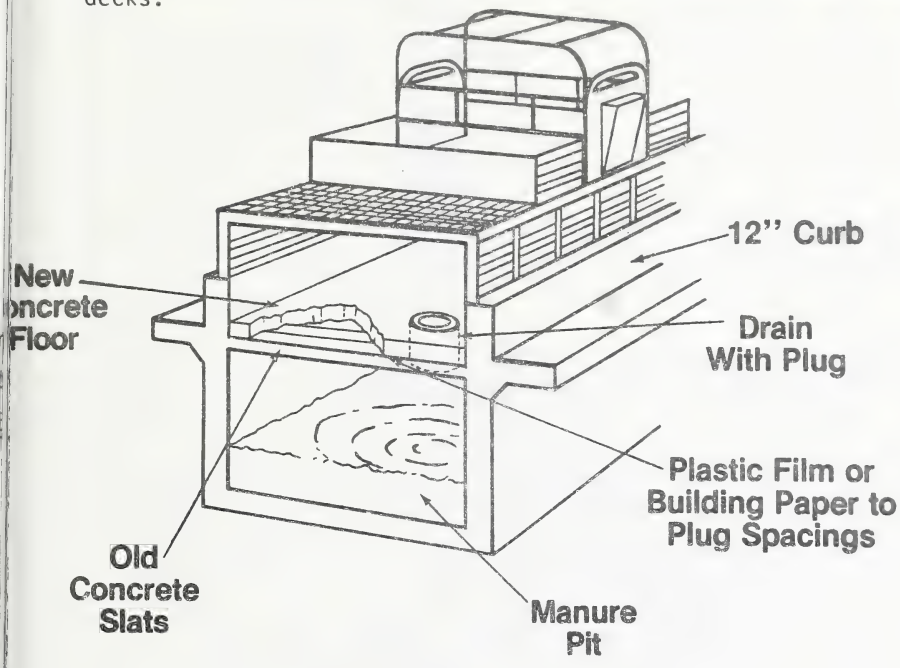
	Weekly	Annua
Farrowings	4.5	234
Born alive (10.5 /litter)	47	2444
Pre-weaning losses (10 %)	5	260
Pigs weaned (9.45 /litter)	42	2184
Post weaning losses (2 %)	1	52
Total pigs produced	41	2132

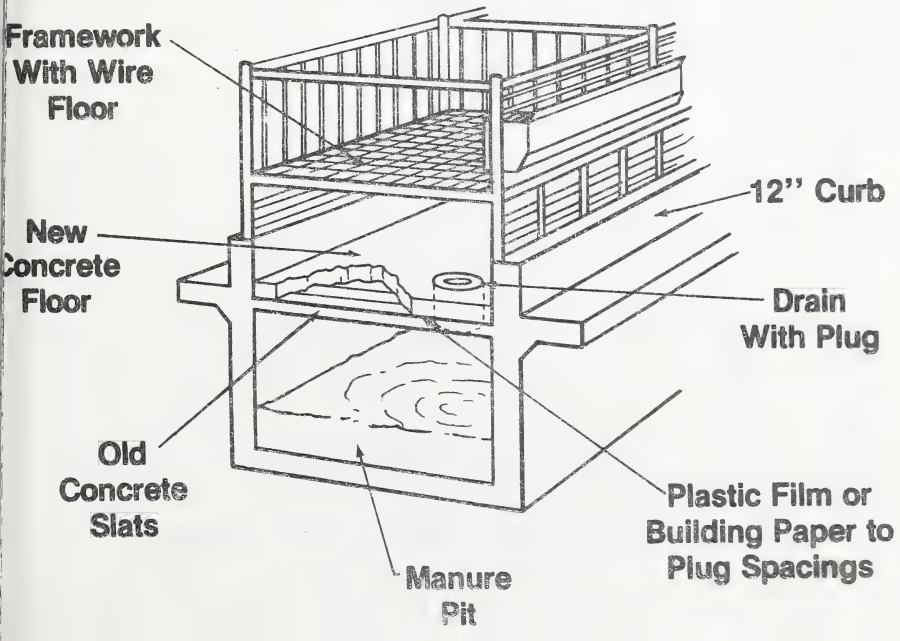
(Adapted from Australian Agnote 1340/80)

SEALING DEEP LIQUID MANURE PITS

Long term storage inside the swine unit in 4 to 6 foot deep liquid manure pits causes odors and manure gases detrimental to the health of both the operator and pigs. Pit gases also shorten the life span of barn equipment.

A method of capping the pit with a concrete floor, forming a shallow gutter under a raised crate or deck, and draining the manure into a sealed pit for storage is shown below. This conversion can also be used to raise farrowing crates or nursery decks.





STEPS

1. Repair existing slats.
2. Cover existing slats with plastic film or building paper.
3. Pour a 4-inch wide 12-inch high concrete curb, then pour a 3-inch concrete floor over slats.
4. The drain can be made using a 6-inch PVC coupler. The plug is a 16-inch long, 6-inch PVC pipe fitted into the coupler. This plug should be capped. The plug can be pulled every 4 to 6 days.

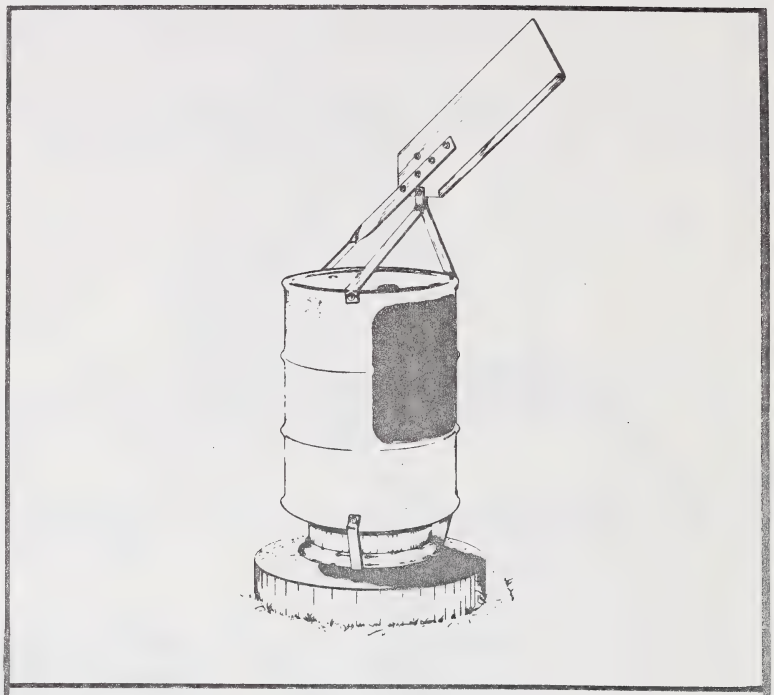
For further information contact your Regional Agricultural Engineer.

(From: American Society of Agricultural Engineers, Paper No. 84 - 4074).

MINERAL FEEDERS

PLAN 1647

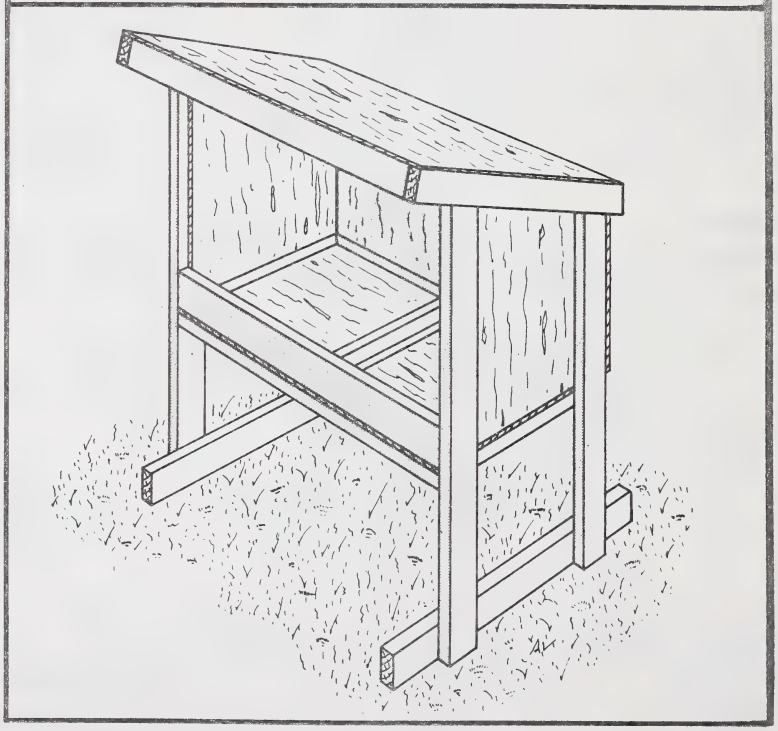
A large amount of salt and minerals fed in troughs on the ground is wasted due to moisture, manure and urine getting into the troughs. The mineral or salt box is easy to construct. The box is roofed to keep minerals dry. The opening should face downwind for additional rain protection. Covered inside corners will reinforce the joints and allow cattle to lick the box clean. To prevent overturning this type of box, the base skids can be anchored to four stakes driven into the ground, or the legs can be extended into post holes and the holes backfilled.



This mineral feeder is constructed from a 45 gallon drum and used automobile parts. The wind rotates the drum by means of the weathervane so that rain is not driven into the feeder opening. The drum pivots on a sturdy concrete base which must be heavy enough to prevent overturning by cattle or wind.

Prior to building a mineral feeder, manufactured mineral feeders should be appraised to determine if any of these are more suitable.

PLAN 2663



BEEF

ECENT CHANGES TO OUR BEEF CARCASS GRADES

The Beef Carcass Grading Regulations have been changed to permit more accurate pricing of all carcasses. The changes of most interest to the farm feeder are:

1) The marbling requirement in the A grade has been removed. It is difficult to assess marbling and was deemed not necessary.

2) The new B1 grade excludes dark cutters and yellow fat. The new B1 grade has the same muscling quality as the A grades, but slightly less fat cover. This should enhance the value of the B1 grade since todays consumer wants a leaner carcass. As of the first of February, the B1 carcasses were discounted 12¢ from A1 - A2 carcasses. Prior to the change in grades, B1 carcasses were discounted 15 to 18¢.

3) The dark cutters and or yellow fat carcasses will be graded B2 or B3. The B3 grade has deficiencies in muscling not evident in the B2 grade. The B2 and B3 carcasses are presently being discounted 35 and 40¢, respectively from the A1 - A2 carcasses.

4) The new C grades are intermediate age carcasses with the same muscling and fat quality as the A grade. Watch for an improved price differential with this grade.

5) The D1 and D2 grades include mature carcasses plus the intermediate age carcasses not meeting the C requirements for muscling and fat.

6) The D3 grade includes all low quality carcasses with little or no fat and deficient muscling. The D4 grade is for the grossly fat carcasses.

For a youthful beef carcass the following table shows the relationship of fat cover and meat and fat color to carcass grade.

	LEAN OR FAT COLOR		
Fat Level mm	Bright Red and White or Amber Fat	Dark Red or Yellow Fat	Dark Red or Yellow Fat or Lacks Muscling
0 - 1	D3	D3	D3
1 - 2	B2	B2	B3
2 - 4	B1	B2	B3
4 - 9	A1	B2	B3
9 - 14	A2	B2	B3
14 - 19	A3	B2	B3
19+	A4	B2	B3

MANAGEMENT PRACTISES TO REDUCE SCOURS

Researchers have stated that unsanitary conditions and crowding are two important factors contributing to an outbreak of scours. They further emphasize that the occurrence of scours can be minimized by considering the following preventative measures:

1) The cow wintering ration should be nutritionally balanced. Weak cows can have difficultly calving, and produce a stressed weak calf unable to stand and nurse.

2) Do not calve in the winter feeding area. The calving area should have good drainage, a southerly exposure and access to trees, a windbreak fence and calf shelters. Snow removal to improve ground conditions and clean, dry bedding regularly is recommended.

3) If calving is restricted to corrals and sheds, move only those cows about to calve within the next 24 hours into the clean calving area. As soon as possible after the calf has nursed, move the cow-calf pair to a nursing area. Do not put the cow-calf pairs back with the uncalved cows. Keep the calving area as dry and clean as possible.

4) Avoid overcrowding and prolonged confinement. Crowding increases the level of contamination within the newborn calf's environment. Delay or failure to ingest colostrum may occur when animals are overcrowded. Researchers suggest not less than 2000 square feet of available space per heifer.

5) Calve heifers and cows separately. Breeding so that heifers start calving 3 weeks before the main cow herd can reduce the incidence of scours in calves from heifers.

6) Divide cows into calving groups. It is easier to control a scours outbreak if cows are divided into small groups of 20 - 40 head. The small groups of 20 - 40 cow-calf pairs can be fed in separate 10 acre fields and moved into large groups as ground conditions dry.

7) Provide extra care for weak calves. Help the calf to stand and ensure that colostrum is taken. Colostrum can be frozen in shallow pans or an ice cube tray and stored in double freezer bags. Defrost in warm water and feed at the rate of 1 liter per 45 lbs weight before the calf is 12 hours of age. Separate the cow and calf from others for the next several days.

8) Discuss scours prevention with your veterinarian. The veterinarian may recommend a scours vaccination program based on the history of scours on your farm.

(Adopted from: Morden, B. 1984. Neonatal Calf Scours Agdex 663 - 23 and Acres, S. 1980. Calf Scours, V1DO).

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Beef 'n Bacon

INTRODUCTION

This is the seventh of eight monthly issues of Beef'n Bacon. The newsletter is being mailed to approximately 2500 beef and hog producers in the northwest region. Our intention is to give a brief overview of the subject matter presented. More information on all articles is available by contacting your District Agriculture office or the editors.

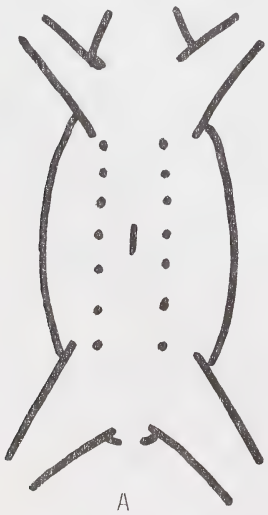
Editors: Rob Hand, Regional Livestock Specialist
Marvin Salomons, Regional Swine Specialist
674-8248 or 134-1248 (Rite)

SWINE

GILT TEAT DEVELOPMENT IMPORTANT

The selection criteria for replacement gilts should be based on visual appraisal as well as performance. It is essential that gilts used for replacements have a minimum of 12 evenly spaced teats along the underline. The number of teats can be checked at weaning time , but the development of teats must be rechecked when the gilts are selected for breeding. Gilts that have abnormal teats, inverted nipples or blind teats should be culled at this time. Non-functional teats at farrowing will reduce the capability of nursing a large litter.

Teat arrangement is also important. As the following diagrams illustrate, the two rows of teats on replacement gilts should be parallel (A) not convex (B). This arrangement allows easy access to the teats by nursing piglets.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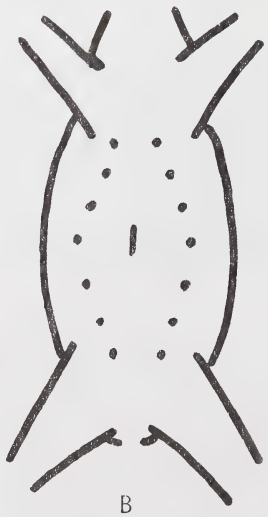
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FOSTERING PIGLETS

The single most important cause of pre-weaning deaths of livebirths is malnutrition or starvation. Malnutrition can result from a number of factors, the most important ones being sow milk shortage (agalactia) and competition for teat space by piglets.
Piglets have greater difficultly competing for teats:

- when litters are large
- when there are smaller or weaker pigs in the litter
- when functional teats are limited by too many pigs, defective teats, or poor teat or udder exposure

TYPES OF FOSTERING

Fostering is one of the most useful tools that can be used to overcome many of the causes of starvation of piglets. Three types of fostering are routinely practiced:

a) Defensive-fostering (saving piglets)
b) Straight-fostering (evening up litter numbers)
c) Cross-fostering (evening up litter weights)

TIPS FOR SUCCESSFUL FOSTERING

1. Prepare piglets for fostering

   Piglets should have at least 10 - 12 feedings of colostrum suckling from their own dam before fostering.

2. Foster promptly

   Foster within three days. Unused mammary glands take three days to dry off. Surplus newly born pigs can be fostered to a sow with spare rearing capacity which has farrowed up to three days previously.

3. Be kind to smaller, weaker piglets

   Foster stronger pigs, unless you feel weaker piglets will be better off with a newly farrowed sow with a small litter of small piglets.

4. Assess sows and their rearing capacity

   Screen mothers for temperament, udder shape and size, and number and exposure of functional teats.

5. Even up birthweights by cross-fostering

   Where batch farrowing is practiced even up birthweights within litters. Ensure smaller piglets go to docile sows.

6. Observe suckling behavior

   Foster weaker piglets and those that appear not to have a definite teat position.

7. Watch for poor-doing pigs

   Poor-doing pigs in older litters can be fostered to newly farrowed sows. Match size and strength. Do not foster sick pigs.

WATER NEEDS FOR PIGS

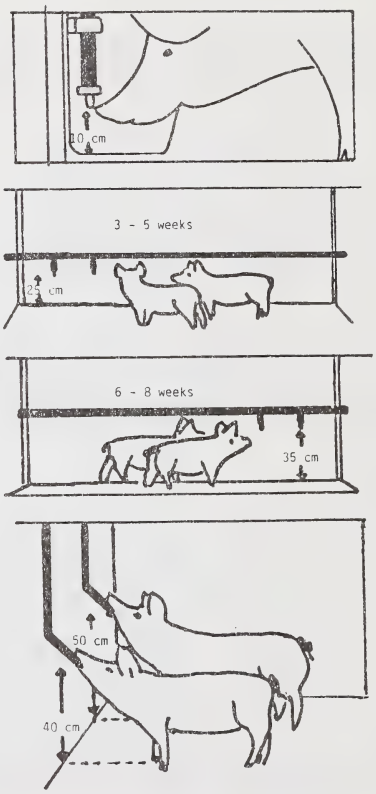
One of the most neglected nutrients is water. Inadequate water intake disrupts body functions that results in reduced feed intakes, reduced daily gains and poorer feed conversions in growing pigs. Lactating sows will reduce milk production. Extreme water deprivation can result in death.

WATER REQUIREMENTS

	Daily Water Consumption (liters/day)	Drinking Valve Output (minimum liters/minute)
Nursing Piglets	1 - 2	1 - 2
Starter Pigs (5 - 10 kg)	1 - 5	1 - 2
Grower Pigs (10 - 35 kg)	4 - 8	1 - 3
Finisher Pigs (35 - 100 kg)	6 - 10	1 - 3
Pregnant Sows and Boars	12 - 20	2 - 5
Lactating Sows and Gilts	25 - 35	2 - 5

RECOMMENDED DRINKER PLACEMENT

1. Sows - The valve should be placed at least 10 cm above the bottom of the feed trough. This enables the sow to clean up feed around the valve.
2. Nursing Piglets - A minimum of one valve per farrowing pen. The drinker should be placed on the side partition 10 cm from the rear wall and approximately 12 cm above the floor.
3. Weaner Pigs - Up to 10 pigs per valve, approximately 25 cm above the floor depending on age of the pigs. In double-deck systems do not place the valve above the one on the lower deck.
4. Grower-Finisher Pigs - Up to 10 pigs per valve - preferably two valves per pen over the slatted area. For pigs 25 - 45 kg a valve is placed at 40 cm height and another at 50 cm height. For slaughter age pigs one valve is placed at 40 cm, another at 60 cm height. Drinkers which are easily adjusted in height are recommended.

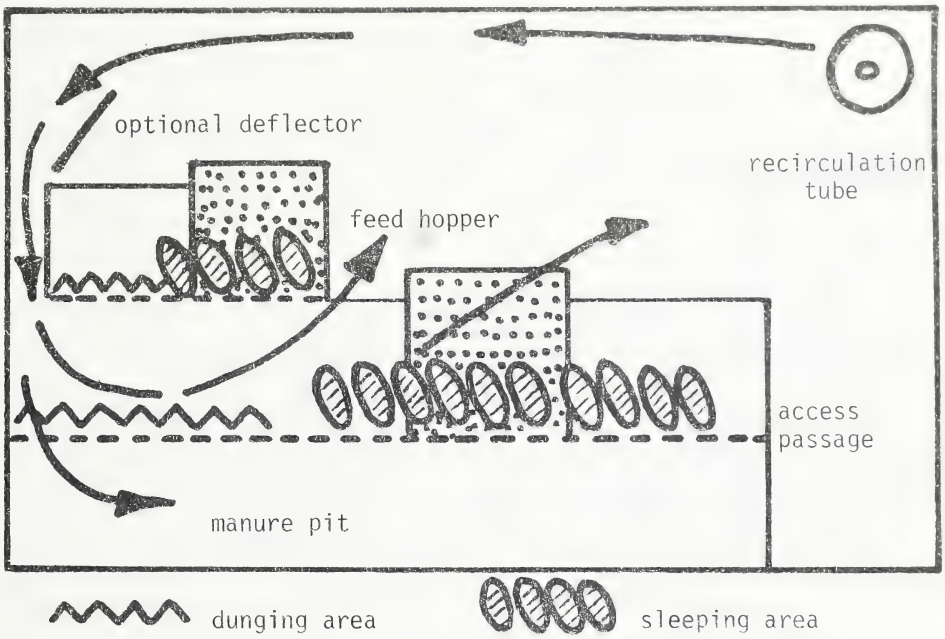


POINTS TO REMEMBER

- In order to prevent pigs having to re-learn as they move through the unit, place waterers of the same type and in the same locations in the pen. Nipples are preferable to biters.
- Drinking valves should be regularly checked for watering performance.
- Provide plenty of drinkers. Timid piglets are often the first to scour and are often the ones unable to jostle with their pen-mates for a chance at the waterer.
- Water requirements increase under high environmental temperatures and high salt levels in the feed.

DOUBLE-DECKING FLAT DECKS

Improvements in pig output in the farrowing unit can ultimately lead to overcrowding problems in other parts of the swine operation. Double-decking weaner flat decks can be an excellent method of alleviating overcrowding problems or alternatively expanding facilities where it may otherwise be difficult to do so. Double-decking requires careful planning and strict management and should be considered only as a last resort.



RULES TO FOLLOW:

1. The top deck should be kept 12 - 14" from the wall. This will facilitate the air flow to strike the dunging area of lower decks thereby improving dunging patterns.

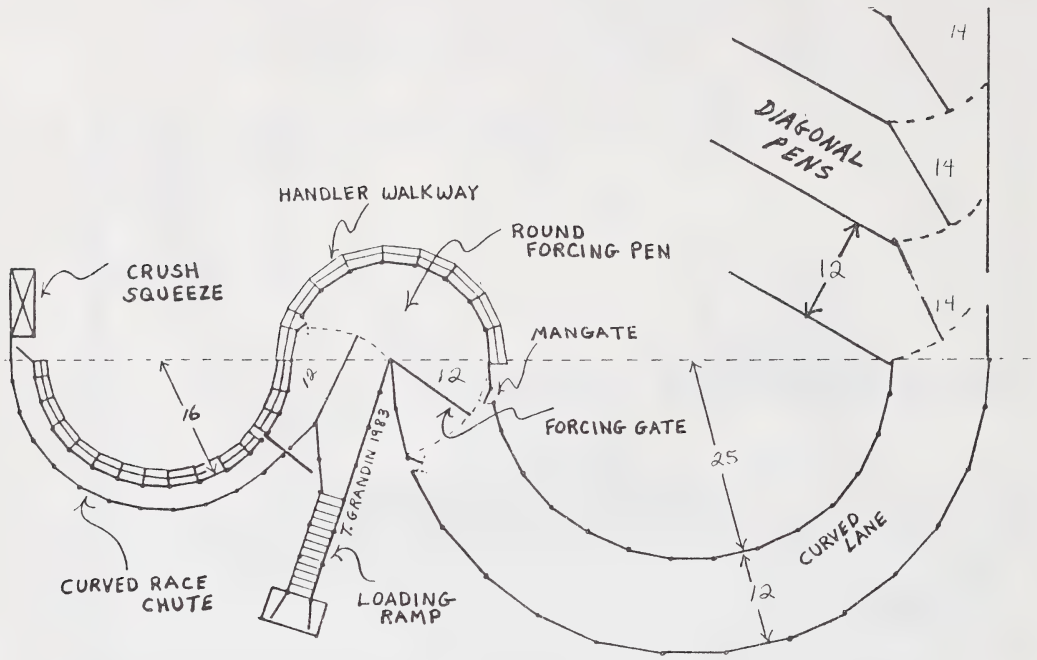
2. Sleeping areas for lower decks should be forward of upper decks. Comfort boards can be used for the first 7 to 10 days to train piglets to lie in these areas.

3. Feed hoppers should be placed in pen side partitions. This allows proper air flow movement and allows viewing of pigs, especially in the upper decks.

4. Do not overstock. Lower decks should contain 20 pigs per pen (2.5 sq ft/pig). Upper decks should contain 10 pigs per pen (1.5 sq ft/pig).

(Adapated from: Pig Farming, September, 1985).

CURVED WORKING CHUTES



Curved alleys and chutes work better than straight alleys or chutes for two reasons.

1) It prevents the animal from seeing the activity in front such as the truck, squeeze or people until it is too late.

2) Animals have a natural tendency to circle the handler. Building a catwalk on the inner radius of the curved chute takes advantage of the animals tendency to circle.

Another important factor in a cattle handling facility is solid sides for the crowding pen, crowding gate, loading chute and single file chute. Solid sides block visual distractions. Cattle within the facility should only see one pathway of escape, i.e. through the single file chute. Blocking gates (i.e. one way gates or sliding gates) should be built so animals can see through to the next animal in front.

ANALYZING THE CALF RECORD BOOK

Those pocket calf books overflow with information about the management of your cow herd. It's just a matter of putting that information into a useable form. Here are some simple calculations to unlock that information.

1. Determine the # of cows exposed last breeding season, the # of cows wintered and the # of cows calved with a live calf.

$$\% \text{ calf crop} = \frac{\text{\# calves}}{\text{\# of cows exposed}}$$

2. Determine where losses occurred

	#
- open cows that failed to conceive	_____
- calf death during gestation	_____
- calf death at birth	_____
- calf death from birth to weaning	_____

3. Determine who had losses and why

	#
- first calf heifers	_____
- second calf cows	_____
- mature cows	_____

4. Determine why calves died
   - difficult birth
   - scours
   - accidental
   - starvation
   - pneumonia

5. Determine when were calves born

	# heifers	# 2nd calf cows	# mature cows
- less than 45 days from start of calving	_____	_____	_____
- 45 - 60 days	_____	_____	_____
- 60 - 90 days	_____	_____	_____
- greater than 90 days	_____	_____	_____

After reviewing your calf books based on the above criteria, are you able to identify any problem areas or areas of improvement? The improvements may be as simple as building a calf shelter, calving cows on clean well bedded ground, breeding replacement heifers 3 weeks before the cow herd, feeding more phosphorus or energy after calving, separating second calf cows from the main herd or increasing feeder space. The next step is to determine what that change costs and is it worth the effort and cost.

PRACTICAL BREEDING PROGRAMS

A well planned breeding program should enhance both the genetic and economic performance of the cow herd. The use of superior bulls adaptable to the environment, striving for a 60 day calving season or shorter, and a high percentage of cows weaning a calf have a large impact on the cow herd's profitability. To take advantage of genetic potential, the following alternative breeding program can be accomplished with a minimum of effort.

1. Breed the early calving cows to the best bulls.

   On most farms, replacement heifers are selected from those calves born earliest in the calving season. Concentrating on the genetic potential of an early born calf assures genetic improvement for the future cow herd. It is accomplished by using genetically superior or proven bulls for the first 21 days of the breeding season. In a crossbreeding program, it may be the best maternal bulls for this 21 day period. Thereafter, all bulls are utilized. With good management, one could expect greater than 65% of the early calving cows to conceive in this period.

2. Divide the cow herd into breeding groups.

   This alternative requires a minimum of cow records other than calving date. Cows are divided into two or three breeding groups depending on time of calving. Early calving cows are placed with the best bulls and middle period calving cows are placed with the second best bulls, etc. The breeding groups could be modified further based on cow age and a crossbreeding program could easily be incorporated.

3. Divide cows by age into breeding groups.

   The cows are divided into two or three management groups. Replacement heifers are one group which is bred three weeks before the other groups. Bulls selected for the replacement heifers have a light birth weight, were born unassisted and are considered easy calvers. The second group consists of the young cows from 3 to 4 years of age. This may be the groups where replacement heifers are selected. Bulls for this group would have strong maternal traits or be classified dual purpose. The third group is the older cows who will be mated to bulls selected for their growth characteristics. Calves from the third group will likely be all marketed.

4. Change the bull breed every four years.

   This alternative is an easy crossbreeding program where hybrid vigor is maintained at about 60% of maximum and only one breeding pasture is required. It's simple. Every four years change the bull breed. Bull breeds should complement each other so that milk production is optimal and calving difficulty is kept to a minimum.

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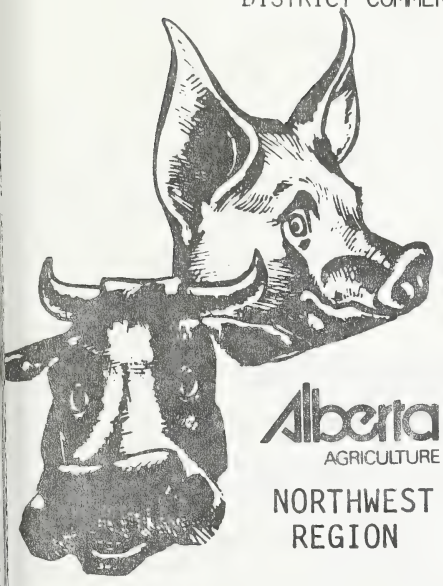

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Beef 'n Bacon

INTRODUCTION

This is the final issue of Beef 'n Bacon. Over the past eight issues we have attempted to give a brief overview of some important topics in beef and swine production and management. We hope this objective has been achieved.

Beef 'n Bacon was initiated as a winter livestock program for the Northwest Region of Alberta. We hope you have enjoyed reading the articles. Your comments on the format, topics and distribution of this newsletter would be greatly appreciated. Please direct your comments to your local District Agriculturist or ourselves.

Editors: Rob Hand, Regional Livestock Specialist
Marvin Salomons, Regional Swine Specialist
Alberta Agriculture
Box 1540
Barrhead, Alberta
TOG OEO
647-8248 or 134-1248 (Rite)

SWINE

STRAY VOLTAGE AFFECTS NURSING SOWS

In the dairy industry, stray voltage has long been recognized as reducing milk production. This same problem has also been found to occur in the farrowing barn.

Unversity of Minnesota researchers have found that a stray electrical charge can have a dramatic effect on sows in farrowing crates. You will feel a tingle with an electrical charge of 6 volts, but sows are more sensitive and will back away from waterers with a charge as low as 2 to 3 volts. Stray voltage in nipple waterers make sows aggressive, and limit milk production due to reduced water intake.

A short in a heat lamp, a bad switch or a corroding junction box could put stray voltage in metal farrowing crates and waterers. If you suspect you may have a problem call your local power company or electrician.

THE FARROWING AGENDA

Studies have shown that playing midwife to your sows can save at least one extra pig per litter. With this advantage in supervised farrowings, herd managers should be aware of the sequences in the normal farrowing process so they can be prepared to correct any problems.

SIGNS OF FARROWING

Since sows tend to behave consistently from one farrowing to the next, previous farrowing history records are helpful. The timing of pre-farrowing signs vary from sow to sow but on average the following approximations apply.

- 2 - 4 days before	- loss of appetite; teats, udder, and vulva begin to swell
- 12 - 24 hours before	- restlessness, gnawing on crate bars, increase in urination and defecation
- 1 - 20 hours before	- bed-making activities
- 1 - 10 hours before	- rise in rectal temperature (0.5°C or 1°F), milk let down, tail twitching
- 0 - 3 hours before	- explusion of meconium (greenish brown fetal feces), blood-stained discharge, contractions start

THE FARROWING PROCESS

Once actual farrowing starts most sows will shiver, strain, paw with their hind legs, and even may squeal. The following guidelines are indicative of normal farrowing processes and time sequences:

1. The average interval between births is 16-20 minutes (usually longer between the first and second piglet). Intervals between births longer than 40-60 minutes may indicate problems and should be explored.

2. The farrowing process may take from 0.5 to 9 hours with an average time of 2.5 hours. The longer the farrowing process the greater the incidence of stillbirths. Gilts are often faster to finish farrowing than sows.

3. Most studies show that almost half of piglets are born hind feet first. If piglets are born hind feet first, there may be a longer interval (approximately 1-5 minutes longer than average) before the next piglet appears.

4. In about 20% of births, the umbilical cord is already broken. Piglets born last are more likely to have their cords already broken.

5. The normal temperature of the sow is 38.9°C (102°F) and while it is normal for temperature to rise to 39-40°C (103-104°F) just after farrowing, a rise over 41°C (105°F) should be viewed with concern.

6. Afterbirth may be expelled quickly after farrowing or a few hours later. Immediate creamy vulva discharge at the end of farrowing is normal.

7. Most piglets suckle within 20 minutes of birth. Formal nursing begins about two hours after farrowing. Piglets nurse 15-20 times per day.

GETTING WEANERS EATING

Weaning is both a gigantic physiological and psychological shock to the pig. If the piglet is not strong enough to be weaned it will react unfavorably by initially not eating, then engorging, then scouring.

A FEW SIMPLE RULES

1. Do not wean weak pigs. Pigs should weigh 5 Kg or more and should be capable of coping with their new harsh environment. If your weaning environment is below standard wean heavier pigs.

2. Provide a warm comfortable environment. Pigs 5-6 Kg weight should be kept in temperatures close to 29-30°C. Provide dry, pre-warmed, totally cleaned weaner pens.

3. Feed a good palatable ration during and immediately after weaning. Feed should be 92% plus digestible at this stage. Very digestible feeds are usually very palatable.

4. Keep water and feed containers free of dung and old or smelly feed. The pig's sense of smell is 12 times greater than yours.

PREVENTING SCOURING AT WEANING

The following feeding schedule promoted by John Gadd requires considerable labor input. It should get pigs eating quickly and at the same time prevent any scouring for overeating.

Pigs are weaned early in the day, left without food for three hours, then given small amounts of food at regular intervals for two days. Uneaten food is not removed unless it is dirty. Ad-lib feeding is possible by Day 3. Trough should be three feet long for 12-16 piglets weighing 5Kg plus.

DAY 1	
9 AM	weaned
12 Noon	¼" food which has 35% milk powder and 90-94% digestible
2 PM	inspect, if clean add ¼" feed
4 PM	inspect, if clean add ¼" feed or little more
6 PM	inspect, if clean add ¼" feed or little more
Last thing	inspect, add ½" feed, leave light on over feeder

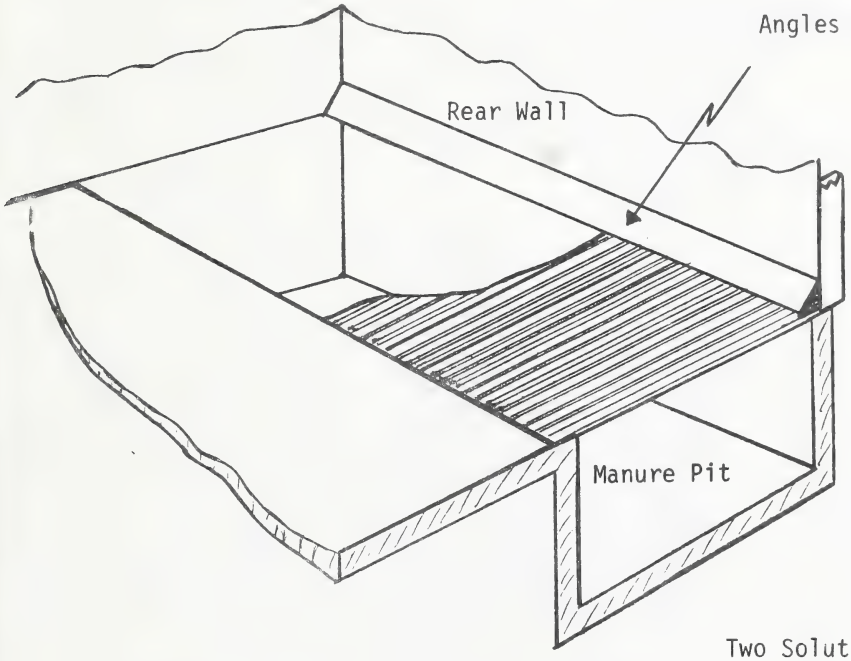
DAY 2	
8 AM	inspect, add ½" feed
11 AM	inspect, add ½" feed
3 PM	inspect, add ½" feed
7 PM	inspect, add 1" feed
Last thing	add enough feed to last the night, leave light on

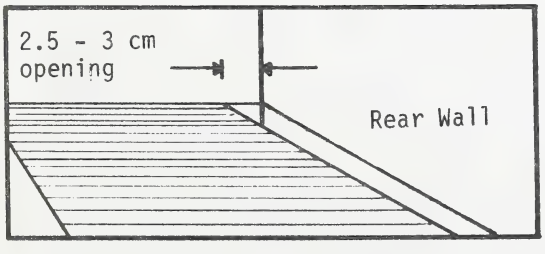
DAY 3

Check and inspect. If looseness is apparent you are feeding too much or the feed is not digestible enough. If OK feed ad-lib or 2-3 times daily. Change to starter feed gradually between day 4 and 7

PREVENTING MANURE BUILDUP

Under slat or weaner deck supports often cause manuare buildup by not allowing manure through to the pit. Pigs unable to tramp manure through slats close to the wall can also be the cause. Two remedies to alleviate this problem are shown below.





Two Solutions:

1. Place an angles block along the wall. One suggested method is to securely attach a split 4" x 4" along the wall. All edges should be smooth and fit snugly to prevent pigs from working the block loose.

2. When planning weaner decks keep deck floors 3 cm from the rear wall. The narrow gap prevents buildup where pigs' feet often do not reach to push manure through.

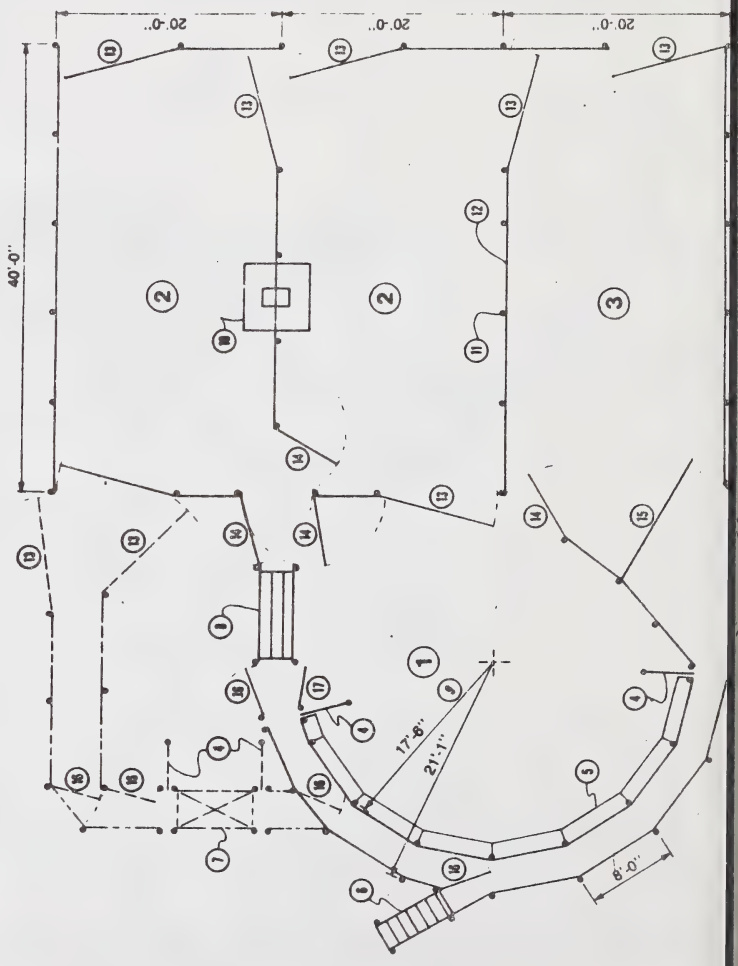
CORRAL PLAN

Cattle handling facilities are an essential part of any cattle operation. Well constructed and functional handling facilities contribute much to the easy, safe and rapid handling of cattle. Good facilities remove much of the frustration which inevitably occurs with stubborn animals.

The handling facilities should be accessible to all the pens. A well drained area should be chosen. A slope of 2 - 6% away from the headgate and squeeze area will provide a dry area where most of the work is done on the cattle. A rough concrete pad in the chute and around the headgate prevents depressions from forming, and gives cattle a solid footing.

Good handling facilities need not be overly expensive; however, it pays to invest in quality in some of the critical areas. Several such areas are pressure-treated post, a good squeeze, and height adjustable sturdy gates and latches. The size and complexity of a cattle handling unit depends on both the size of herd and feedlot and the type of operation (ranch, feedlot, exotic breeder, etc.). The type of operation also determine the type of services the handling system is expected to perform.

1. working area - water hydrant and building for medical supplies and treatment equipment may be located here
2. holding pen - 40 head
3. crowding pen - 80 head
4. blocking gate
5. catwalk
6. loading chute
7. scale
8. cattle squeeze and headgate
9. if wedged chute is not desired, place posts 39" o.c. apart using a 17'-10" radius for inside posts
10. waterer and concrete pad
11. 6" top 8'0" long P.T. posts
12. 4 rail fence - 5'0" high
13. 10'0" gate
14. 6'0" gate
15. 12'0" crowding gate
16. 4'0" gate
17. gate-size as required
18. 2" X 6" chute rails



Adapted from Beef Cattle Housing, Handling and Feeding Systems

CROSS FENCING

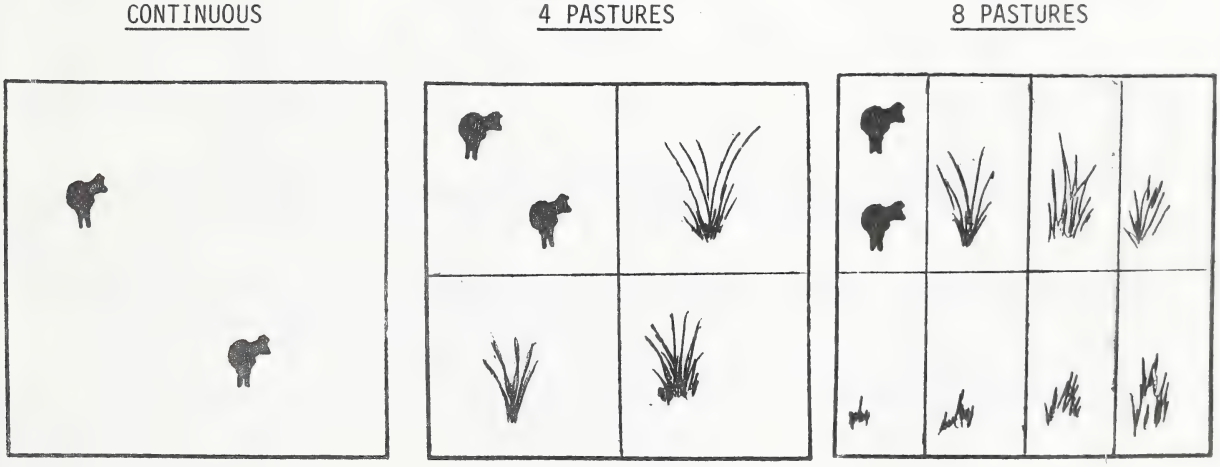
A recent pasture survey conducted in the northwest region of Alberta concluded that

a. on a continuously grazed tame grass pasture, it takes from 4 to 5 acres to pasture a cow-calf pair for the season (150 days)
b. if rotational grazing, fertility and management is applied, as few as 1.5 to 2.0 acres of pasture are required for that cow-calf pair for the season

This doubling of productivity is partially due to crossfencing large pastures into smaller pastures. Fertility increases the plant growth and crossfencing allows better utilization of that pasture growth. Better utilization occurs because the pasture growth is kept in a vegetative condition for the livestock.

Crossfencing increases pasture productivity because it reduces selective grazing. Cattle are not allowed to graze the same palatable plant over and over until that plant is sufficiently stressed and it dies out.

Crossfencing allows for rest periods as illustrated in the following diagrams



CONTINUOUS	4 PASTURES	8 PASTURES
grazed 100%	grazed 25%	grazed 12.5%
rested 0%	rested 75%	rested 87.5%

In a 150 day season, cattle graze for only 19 days on each pasture of an 8 pasture rotation as compared to 75 days on a 2 pasture rotation. It's like harvesting a hay crop, it only takes 2 days to cut the hay (1 day for each of the two cuts). The remaining days are left for regrowth. Under good growing conditions pasture regrowth can be grazed in 21-28 days. If conditions are dry or as the season progresses the rest periods should be longer, perhaps 28 to 35 days.

The number of pastures are more important than their size or shape. A minimum of 8 pastures is recommended with flexibility to divide again to achieve that optimal grazing condition. Crossfences do not need to be expensive or ellaborate. Simple one or two wire (high tensile), electrified, with 30-50 ft. picket post spacing will do the job. Remember good grass is the best fence you can have.

Cross fencing to yield the right number of pastures will provide adequate rest and regrowth for the grass, increase pasture productivity, and extend the grazing season.

MANAGEMENT GUIDELINES

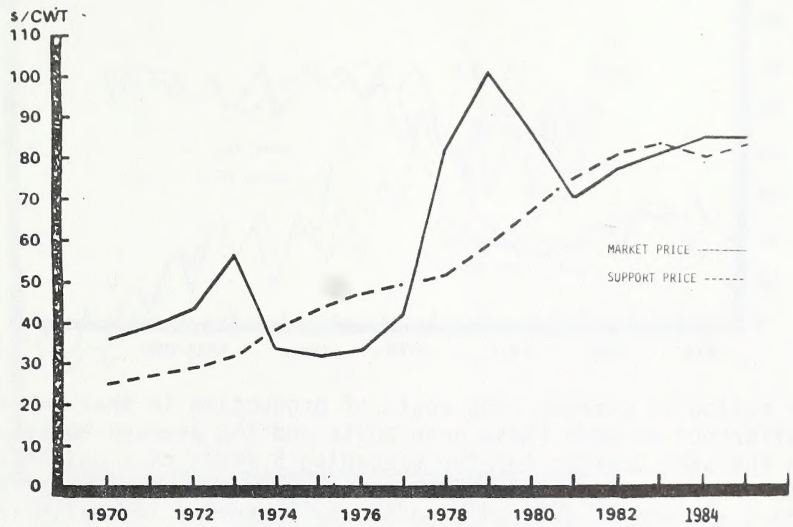
Here are ten management guidelines that are guaranteed to improve productivity of the cow-calf herd and are generally considered to have a high benefit to cost ratio.

	MANAGEMENT PRACTICE	MANAGEMENT CHANGE	POSSIBLE EFFECT ON HERD
1.	Buying Bulls	buy performance tested bulls	increased growth at weaning and yearling weight
2.	Breeding Program	crossbreed	better mothering ability higher fertility, increased weaning and yearling weight
3.	Cow Identification	individually tagged	more management information relating to cow productivit
4.	Pregnancy Test	late August, September	cull open cows, shorten calving interval, higher price for culls than November, extend fall pasture, decrease winter feed supply
5.	Replacement Heifers	select oldest and largest	lessen calving difficulty, increased milk potential an possibly earlier breeders
6.	Length of Calving Season	shorten to 60 days	heavier weaning weights, better utilization of resources
7.	Trace Mineral - Salts	use salts with recommended levels of copper, zinc and selenium	increased fertility, fewer calving problems, increased weaning and yearling weight
8.	Growth Promotants	implant calves, yearlings	increased growth rate, improved feed conversion
9.	Grazing Pastures	cross fence pastures and rotationally graze	extend grazing period, improve feed quality, higher stocking rates, improved weaning weights
10.	Weighing	weigh calves at weaning	more information on cows, a check to ensure improved productivity of cow-calf enterprise

NATIONAL TRIPARTITE PRICE STABILIZATION SCHEME FOR FEEDER CALVES (COW-CALF)

The program is designed to reduce the loss of income to producers due to market risks by stabilizing prices

- coverage starts January 1, 1986
- producer participation is voluntary
- all producers shall receive an equal level of support across Canada
- over 10 years it is expected that premiums should equal total payment



SUPPORT PRICE

- based on 85% of the moving average price of feeder calves (on a national basis) in the preceding 10 years indexed for inflation
- average price of feeder calves is the September to December price of 500 - 600 lb steers and 400 - 500 lb heifers at the Toronto, Winnipeg, Saskatoon and Edmonton Public Stockyards and is weighted by the provincial distribution of beef cow numbers

PREMIUM

- up to 3% of the slaughter cattle value, for all cattle schemes
- costs shared equally between Canada (1/3), Province (1/3) and participating producer (1/3)
- 1986 premium is $7.70/beef cow based on April 1 inventory to a maximum of 600 head

PAYMENT

- (support price minus market price) times 427.5 lbs/cow
- the 427.5 lbs is determined by a weaning rate of 90% and weaning weight of 500 lbs for steers and 450 lbs for heifers
- do not need to sell calves to receive payment

DEADLINE

- producers who do not enrol by June 30, 1986, may join at a later date but coverage for late enrolment will be 50% of potential payment for first year after enrolment

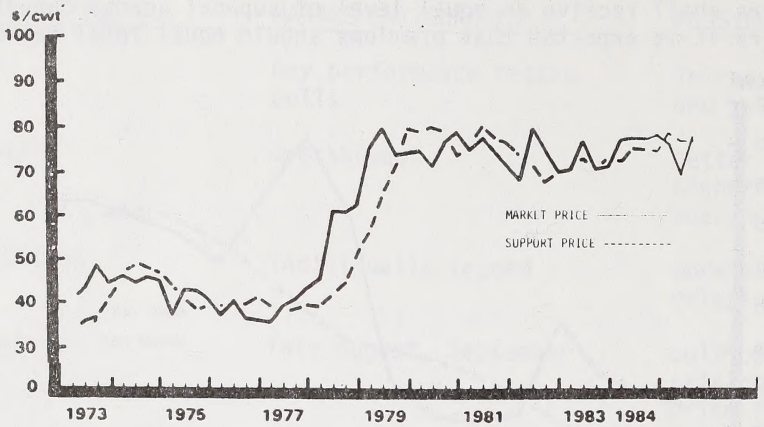
FURTHER INFORMATION AVAILABLE AT

District Agriculture Office or Alberta Red Meat Stabilization Office (422-0137)

NATIONAL TRIPARTITE PRICE STATILIZATION SCHEME FOR SLAUGHTER CATTLE

The program is designed to reduce the loss of income to producers due to market risks by stabilizing prices

- coverage starts January 1, 1986 (first quarter 1986 payment determined to be zero)
- producers participation is voluntary
- all producers shall receive an equal level of support across Canada
- over 10 years it is expected that premiums should equal total payment



SUPPORT PRICE

- equal the estimated current cash costs of production in that quarter plus 50% of the difference between these cash costs and the average market price of slaughter cattle in the same quarter for the preceding 5 years on a national average basis
- cash costs of production are estimated from production models of short and long keep heifers and steers and weighted by the number of federally inspected heifers and steers in eastern and western Canada
- average market price is average price of all cattle grading A, B or C at regionally representative markets and weighted by number slaughtered in various regions

PREMIUM

- up to 3% of the average market value of slaughter cattle for the preceding 3 years for all cattle schemes
- costs shared equally between Canada (1/3), Province (1/3) and producer (1/3)
- for 3rd quarter of 1986, premium is $6.60/head
- must register and pay premium by 15th day of following month in which calves purchased or weaned

PAYMENT

- (support price minus average market price) times average slaughter weight
- since producer premiums are not payable for the 1st and 2nd quarter of 1986, payment in this period will be reduced by $6.60 and will not exceed the maximum of the provincial and federal commitment ($13.20/head)
- coverage up to 2000 head per quarter or 8,000 per year

DEADLINE

- producers who do not enrol by June 30, may join at a later date but coverage for late enrolment will be: 1st quarter after enrolment 25% of potential payment, 2nd and 3rd quarter 50%, 4th quarter 75% and thereafter 100%

FURTHER INFORMATION AVAILABLE AT

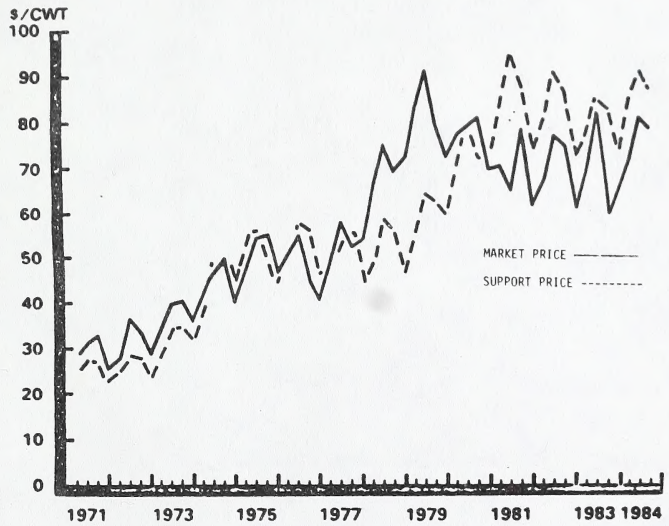
District Agriculture Office or Alberta Red Meat Stabilization Office (422-0137)

SHEEP

NATIONAL TRIPARTITE PRICE STABILIZATION SCHEME FOR FEEDER LAMBS

The program is designed to reduce the loss of income to producers due to market risks by stabilizing prices

- coverage starts March 1, 1986
- producer participation is voluntary
- all producers shall receive an equal level of support across Canada
- over 10 years it is expected that premiums should equal total payment



SUPPORT PRICE

- based on 95% of the national average price of lambs in the same quarter in the preceding 10 years indexed for inflation and changes in feed costs
- the average price is based on lambs grading A B and C and weighing 80 lbs and over

PREMIUM

- up to 3% of the average market value of lambs for the preceding 3 years
- costs shared equally between Canada (1/3), Province (1/3) and producer (1/3)
- for the period June 1 to November 30, 1986 the premium is $1.40 per lamb, due by June 15, 1986
- there is a upper registration limit of 1000 ewes with the number of eligible lambs ranging from 1.0 to 3.0 per ewe per year
- premium based on number of ewes registered x reproduction rate (1 to 3)

PAYMENT

- (support price minus market price) times number of lambs sold (assumes a 100 lb lamb)
- lambs must be sold and slaughter lambs must weigh 125 lbs or less or be A B or C grade lambs

DEADLINE

- producers who do not enrol by June 15, 1986 may join at a later date but coverage is limited to: for the 1st quarter after enrolment 25% of potential payment, 2nd and 3rd quarter 50%, 4th quarter 75% and thereafter 100%.

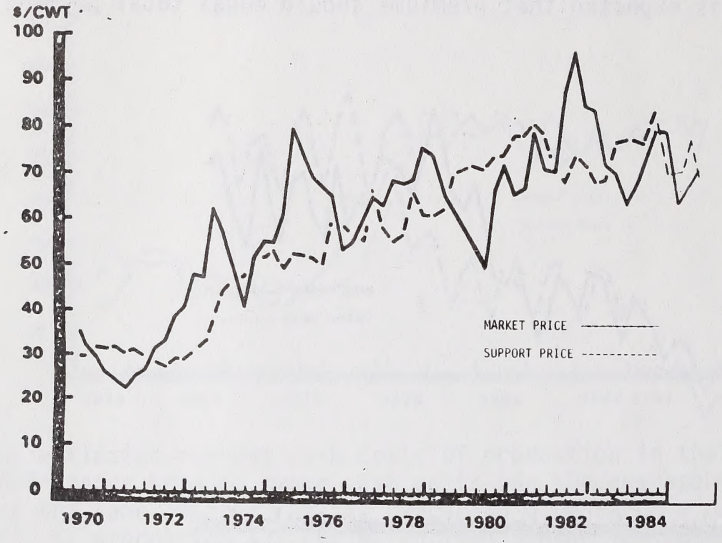
FURTHER INFORMATION AVAILABLE AT

District Agriculture Office or Alberta Red Meat Stabilization Office (422-0137)

NATIONAL TRIPARTITE PRICE STABILIZATION SCHEME FOR HOGS

This program is designed to reduce the loss of income to producers due to market risks by stabilizing prices.

- coverage starts January 1, 1986 (first quarter 1986 payment determined to be zero)
- participation is voluntary with equal level of support across Canada
- over 10 years it is expected that premiums should equal total payments



SUPPORT PRICE

- guaranteed margin approach
- support price = current national cash costs of production plus 90 to 95% (95% for 1986) of margin (difference) between cash costs and national average market price of hogs in the same quarter for the preceding 5 years
- coverage up to 2000 hogs/quarter or 8000 hogs/year (grading 80 index plus)

PREMIUMS

- shared 1/3 producer, 1/3 provincial government and 1/3 federal government
- up to 3% of the value of hogs sold by enrolled producers in the preceding 3 years
- premiums automatically deducted on sales through the Marketing Board
- the initial premium is $2.90 per hog for hogs sold starting July 1, 1986

PAYMENT

- support price minus national average market price = payment/cwt
- example: $77.23/cwt - $67.31/cwt = $9.92/cwt
  Payment = $9.92 x 1.722 (avg. hog carcass wt) = $17.08/hog

DEADLINE FOR REGISTRATION

- except for beginning producers, those who do not enrol by June 15, 1986, may join at a later date but coverage after enrolment will be 25% of payment (1st quarter) 50% (2nd & 3rd quarters), 75% (4th quarter) and 100% (by 5th quarter)

FURTHER INFORMATION

District Agriculture Offices or the Alberta Red Meat Stabilization Office (422-0137)